



FIT UP BED FUB 30/60



Instruction & Service Manual

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WARNING



Arc welding and cutting can be injurious to yourself and others. Take precautions when welding. Ask for your employer's safety practices which should be based on manufacturer's hazard data.



ELECTRIC SHOCK can kill.

- Install and earth the welding unit in accordance with applicable standards.
- Do not touch live electrical parts or electrodes with bare skin, wet gloves or wet clothing.
- Insulate yourself from earth and the work piece.
- Ensure your working stance is safe.



FUMES AND GASES can be dangerous to health.

- Keep your head out of the fumes.
- Use ventilation, extraction at the arc, or both, to keep fumes and gases from your breathing zone and the general area.



ARC RAYS can injure eyes and burn skin.

- Protect your eyes and body. Use the correct welding screen and filter lens and wear protective clothing.
- Protect bystanders with suitable screens or curtains.



FIRE HAZARD

- Sparks (spatter) can cause fire. Make sure therefore that there are no inflammable materials nearby.



NOISE can damage hearing.

- Protect your ears. Use earmuffs or other hearing protection.
- Warn bystanders of the risk.



MALFUNCTION

- Call for expert assistance in the event of malfunction.

READ AND UNDERSTAND THE INSTRUCTION & SERVICE MANUAL BEFORE INSTALLING AND OPERATING.

PROTECT YOURSELF AND OTHERS!

INSTRUCTION MANUAL

1. SAFETY FUNCTIONS

Users of handling equipment have ultimate responsibility for ensuring that anyone who works with or near the equipment observes all the relevant safety precautions.

The following recommendations should be observed in addition to the standard regulations that apply to the work place.

All work must be carried out by trained personnel who are familiar with the operation of the FUB 30/60. Incorrect operation of the equipment may lead to a hazardous situation which can result in injury to the operator and damage to the equipment.

Staying under the workpiece during the working cycle is absolutely forbidden! Staying on top of the workpiece during the working cycle is forbidden without the safety equipment!

1. Anyone who uses the FUB 30/60 must be familiar with
 - its operation
 - the location of the emergency stop
 - its function
 - relevant safety precautions

To make this easier each switch, pushbutton or potentiometer is marked with a symbol that indicates its function when activated.

2. The operator must ensure that
 - no unauthorized person is stationed within the working area of the machine when it is started up
 - no-one is unprotected when the arc is struck
3. The work place must
 - be suitable for the purpose
 - be free from loose objects
 - be clean, because dust and welding flux can make the frictional force of the roller
4. Personal safety equipment
 - always wear recommended personal safety equipment, such as safety glasses, flame-proof clothing, safety gloves
 - do not wear loose-fitting items, such as scarves, bracelets, rings etc., which could become trapped or cause burns
5. General precautions
 - make sure the welding return cable is connected securely to the workpiece.
 - work on high voltage equipment may only be carried out by a qualified electrician
 - appropriate fire extinguishing equipment must be clearly marked and close at hand
 - lubrication and maintenance must not be carried out on the equipment during its operation; follow the lubrication instructions
 - check the tightness of the hydraulics, repair all possible leaks immediately. In other problem cases please contact to the producer or his representative
 - these products should not be lubricated or serviced during operation.

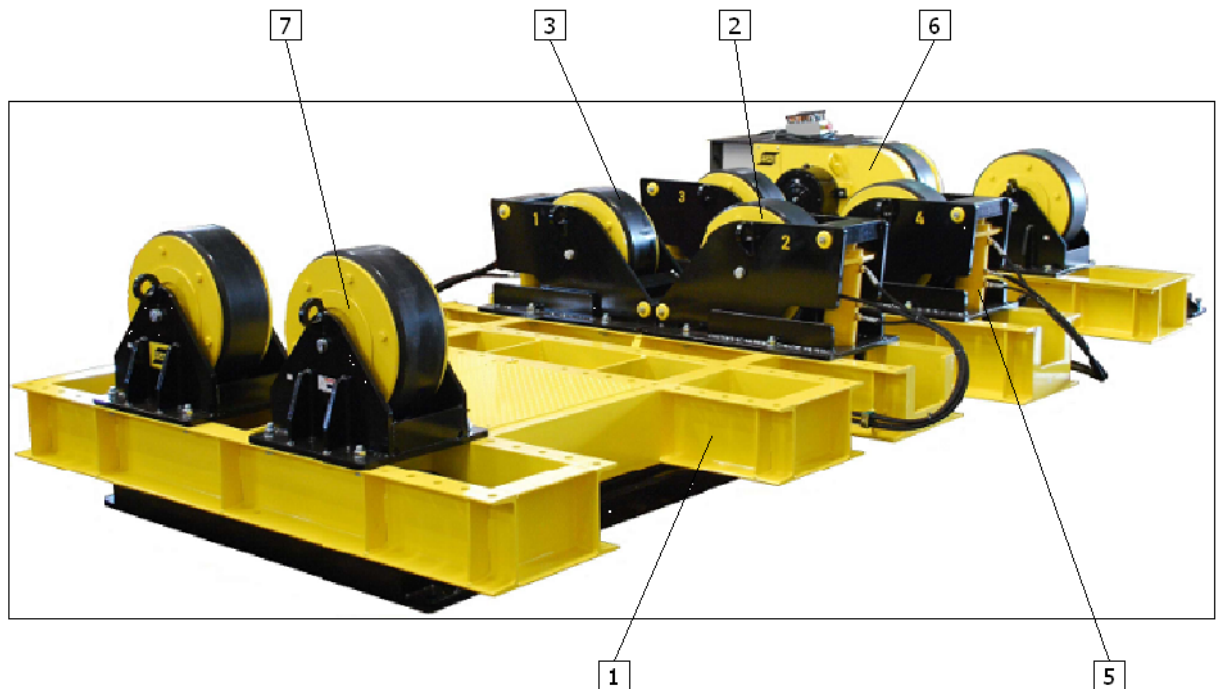
2. INTRODUCTION

2.1 General

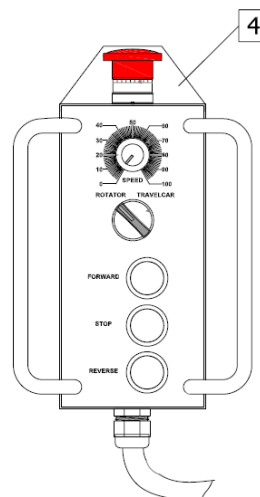
FUB 30/60 are a basic solution for the alignment of a variety workpieces. They occupy little space and feature quick and easy manual diameter adjustment by means of bolts.

All models meet or exceed the EN occupational safety requirements.

If you use the FUB for any other purpose such as painting or blasting, please confirm suitability from the manufacturer or his representative.



1. Main frame
2. Freely rotating
3. Rollers
4. Remote control
5. Hydraulic group
6. CD30
7. CI30

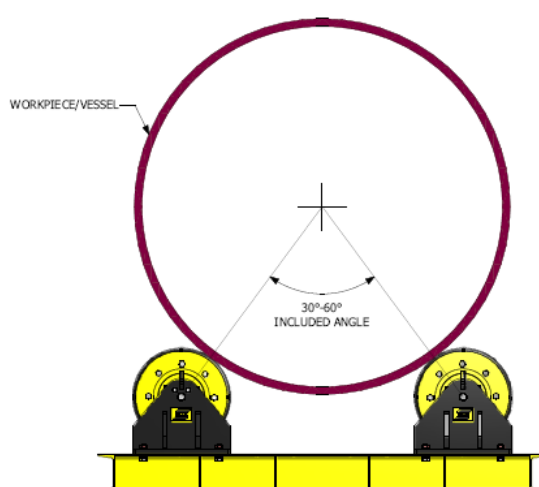


2.2 FUB 30 Series Technical Specifications

FUB Model**

Model	FUB 30
Vessel size (min) Diameter	610mm at 90 degree included angle
Vessel size (max) Diameter	6435mm at 30 degree included angle
Tire type Polyurethane	20.5" x 7"
Roller speed	130-1295 mm/min
Control voltage	24V DC
Supply voltage	380V-3P-50Hz 14+10A
	460V-3P-60Hz
Roller drive control	2.2 kW AC Inverter
Control Pendant via push button	
Roller drive motor	AC 2.2 kW
Travel car bogie	Y
Travel car speed	238-2380 mm/min
Travel car drive AC	1.1 kW
Power pack rating	1.5 kW
Pump	2.1 cc
Tank capacity	8 litres
Cylinder A stroke length	150mm
Cylinder B stroke length	250mm
Net weight	5250kg

NOTE! ALL MOTORIZED ROLLER BEDS ARE DELIVERED AS STANDARD CONNECTED FOR 400V-50Hz-3ph. REFER TO SERVICE MANUAL FOR OTHER SUPPLY VOLTAGES.



* Max rotational torque in rotational speed range 100%-10% of max speed.

** These are the technical values for standard models. If you have ordered a special model, the values might be different from these.

2.3 Machine Plate

Machine plate is attached to the control cabinet.

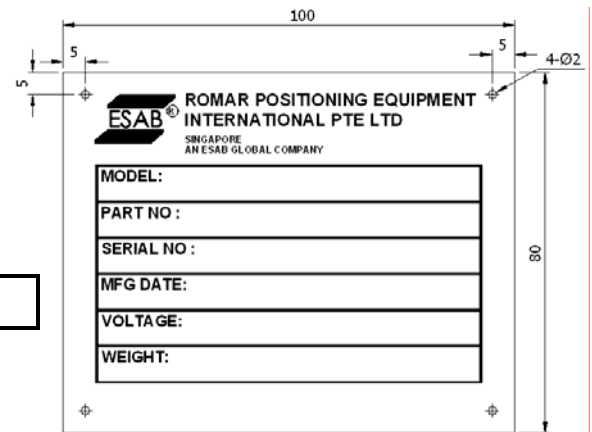
It has important information:

Type	The type of machine
Ser.No.	The serial number of machine
Part.No.	The Esab article number for the machine
Man.year	The manufacturing year of the machine.
Weight	The weight of the machine.

NOTE! THE WEIGHT IS WITHOUT ACCESSORIES!

The machine plate has electrical information:

Hz	Mains supply connection Hz
V	Mains supply connection V



NOTE! WHEN ORDERING SPARE PARTS, PLEASE STATE ALL THE INFORMATION IN MACHINE PLATE!

3. INSTALLATION

IMPORTANT! READ ALL RELEVANT MANUALS AND SAFETY PRECAUTIONS CAREFULLY BEFORE STARTING TO UNPACK AND INSTALL THE EQUIPMENT!

NOTE! MAKE SURE INSTALLATION IS CARRIED OUT BY SUITABLY TRAINED PERSONNEL.

3.1 Handling and Storage of the Machine

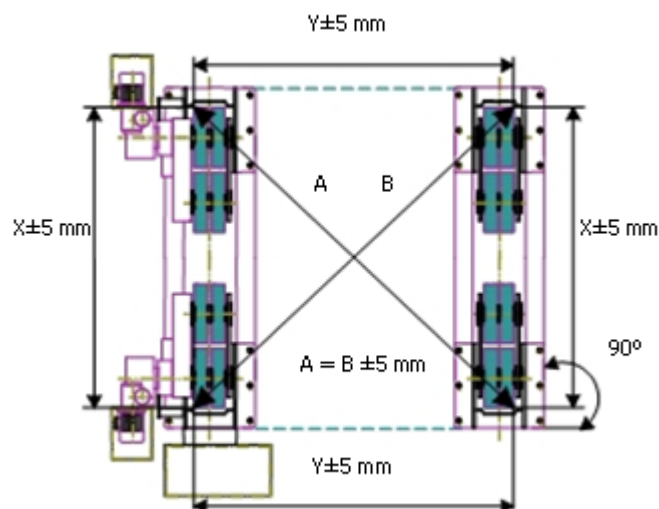
The machines are packed on a base, suitable for lifting by crane and/or forklift. Lift the machine from the lifting points (lifting loops) only.

Unload the machine from the packing and check the outer condition. Do not store the machine outside or in damp places.

NOTE! CHECK THE MACHINE WEIGHT FROM THE TECHNICAL DATA. BE CAREFUL AND OBSERVE THE GENERAL LIFTING INSTRUCTIONS.

4. STARTING-UP INSTRUCTIONS

- ❖ Check the required space from the dimensional drawing and ensure that the electric cabinet can be opened freely.
- ❖ Take care that the basement is flat and made of non cracked concrete and its strength has to be 30 N/mm² or better.



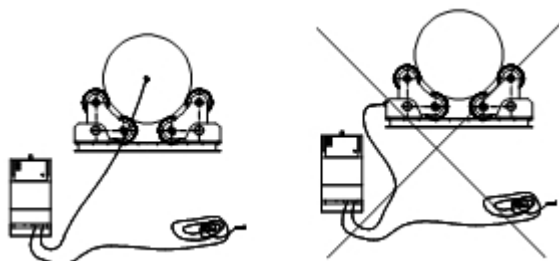
The various roller bed units must be aligned with each other in parallel $X = X$, $Y = Y$ (as in the diagram).

- ❖ Before connecting the mains supply, check that the main switch is set OFF and that the mains voltage is the same as the connection voltage.
- ❖ Connect the remote control unit.

NOTE! PLUG FITS ONLY IN ONE POSITION.



DO NOT CONNECT THE WELDING RETURN CABLE THROUGH THE FRAME OF THE FUB – THE BEARINGS AND THE CONTROL MAY BE DAMAGED.



- ❖ Turn the supply on by main switch - signal lamp should light.
- ❖ Connect the remote control function (see 5.2.2: Remote control).
- ❖ Test rotation and speed control of roller bed in both directions.
- ❖ Connect foot pedal if any, and test the action.
- ❖ If the rotation is in the incorrect direction change two of the input phases.

5. OPERATION INSTRUCTIONS

5.1 Loading and Unloading of the Workpiece

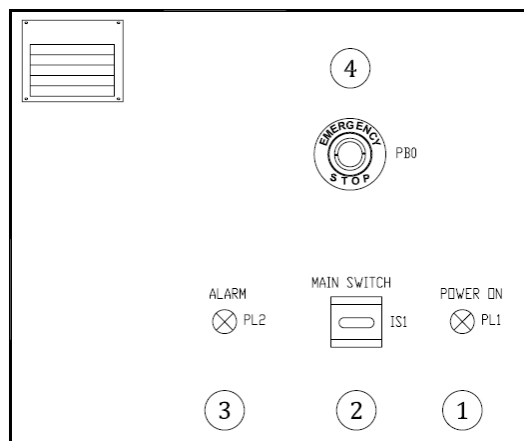
- ❖ When selecting a FUB30 the range of weights and diameters of the workpiece must be ascertained. Normally, the rolling capacity of the power section equals the loading capacity of three sections. In the case of asymmetric objects, the rolling capacities need to be calculated and compared to the roller bed's capacity.
- ❖ Before loading, it is important to ensure that the diameter of workpiece is within the maximum and minimum limits shown in the technical data and you do not exceed the maximum load.
- ❖ Ensure that the rotation moment is sufficient (weight of workpiece / eccentricity).
- ❖ Take into consideration the weight distribution of the workpiece.
- ❖ Connect the welding work return cable directly to the workpiece.
- ❖ When you are lifting the workpiece, observe the general lifting instructions.

NOTE! BEFORE USING THE FUB, ENSURE THAT THE ROTATION CAPACITY IS SUFFICIENT FOR YOUR WORKPIECE.

5.2 Control Devices

5.2.1 Control Panel

1. Mains signal lamp (Power on)
2. Main switch
3. Alarm Signal
4. Emergency "STOP"

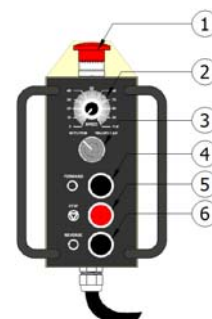


5.2.2 Remote Control

All roller beds are equipped with a low voltage 24 V remote control unit. The electrical functions are controlled by the remote control unit.

Functions of Rotator Pendant Controller

Item No.	Type	Feature	Functions
1	Emergency Stop	Rotary Release	Emergency "STOP"
2	Knob	Potentiometer	Rotator/Travel Car Speed
3	Selector	2 Way	Select "Rotator" or "Travel Car"
4	Button	Self-Holding	Forward
5	Button	Self-Holding	Stop
6	Button	Self-Holding	Reverse



SERVICE MANUAL

1. SERVICE AND MAINTENANCE

1.1 Troubleshooting & Remedial

S/No.	Malfunction	Possible Cause	Elimination
1	No rotation or lights	- No Incoming Power - Faulty Motor Starter - Faulty Panel Isolator	Turn on Wall Isolator Turn on Panel Isolator Release Panel E-Stop Release Pendant E-Stop Replace Replace
2	Incorrect Rotation Direction	- Incorrect Phases	Change any 2 phase at Wall Isolator
3	No rotation although power is available	- Loose or broken cable - Faulty pushbutton	Tighten or replace Replace button
4	Alarm light up	- Inverter problem - Overload relay trip - Motor burnt	Replace inverter Reset inverter Reset relay Replace motor
5	Speed cannot be regulated	- Parameter setting - Faulty potentiometer - Wire loose or broken	Reset inverter Replace potentiometer Tighten or replace

1.2 Maintenance Routine for the Equipment

CHECKING AREA	CHECKING POINT	DESCRIPTION	DAILY	EVERY 6 MONTHS	FUNCTIONS
General	Working area	Working area must be suitable for work	X		Visual checking
	Whole machine	Abnormal vibration, noise and heating	X		Visual checking (make immediately all the needed repairs)
		General condition of machine	X		Visual checking
Mechanical	Fastening bolts	Fastening bolts have to be tight		X	Tight all fastening bolts
	Cover and safety equipment	Must be in their places and in proper condition	X		Visual checking (make immediately all the needed repairs)
	Transmission mechanism	Checking of the gear oil		X	Add oil or change it according to lubrication instructions
Electrical	Electric cabin	Electric cabin has to be clean		X	Vacuum the cabin
	Connections	Screw and plug tight and in good condition		X	Tight and check all connections
		Cable must be unbroken	X		Visual checking (change when needed)
	Remote control	Emergency stop button has to be unbroken	X		Check the function
		Function		X	Check all the functions and repair when needed
	Cables and sensors	Cables and sensors must be unbroken		X	Visual checking (broken cables and sensors must be changed immediately)
	Components	Check relays, contactors and fuses		X	Visual checking (check tips and change when needed)

NOTE! IN CASE OF HEAVY USE, THE CHECKING HAS TO BE DONE ONCE A MONTH!

1.3 Lubrication Instructions

S/N	Component	Inspection & Action	Lubricant & Detergent Code	Qty	Duration of Operation
1	Gear Train	Grease charge	Shell EP Grease 1128	As required	As required
2	Coupling	Check condition	Shell EP Grease 1128	As required	2,000 Hours
3	Roller Primary Gearbox	Oil Change	Shell Omala 220	2.8L	As necessary, 2000 hours or 18 months
4	Roller Secondary Gearbox	Grease charge	Shell EP Grease 1128	6.3L	As necessary, 2000 hours or 18 months
5	Bogie Gearbox	Oil Change			

1.4 Service of Electrical Devices

- ❖ Only a trained electrician is authorized to service electrical devices according to service instructions and working safety instructions.
- ❖ Turn off the supply at the main switch before starting the service work and before removal of machine's protecting cover. Feeding fuses must also be relieved.
- ❖ The manufacturer's instructions for servicing electric motors must be followed.
- ❖ The released thermal relays and blown fuses are signals of disturbances, overloading or heavier moving than normally.
- ❖ Before restarting the machine or changing any parts must be cleared the reason for the fault.
- ❖ Unless this is the case, repeated disturbances can cause more serious faults in covered structures e.g. in feed motor.

NOTE! FAULTS CAUSED BY NON-PERTINENT USE OR SERVICE ARE NOT INCLUDED.

2. PARTS LIST

Parts list for electrical and mechanical components are found in the succeeding pages.

**DRAWING LIST**

Sales Order No		Item No	1
Customer/Project		No. of Units	1
Product	FIT-UP BED	Reference No	SD-F030-ED11
Model	FUB-30	Revision	2(Revised on 27/03/2009)

Prepared By :	Approved By :	Issued To :

No	Drawing No.	Sht	Rev	Description	Qty/Unit	Remarks
1	SD-F030-EC11	1	2	CONTROL PANEL EQUIPMENT LIST(CP1)	N/A	
2	SD-F030-EC11	2	2	CONTROL PANEL EQUIPMENT LIST(CP1)	N/A	
3	SD-F030-EC21	1	0	CONTROL PANEL EQUIPMENT LIST(CP2)	N/A	
4	SD-F030-EC21	2	0	CONTROL PANEL EQUIPMENT LIST(CP2)	N/A	
5	SD-FXXX-E101	1	0	MAIN CIRCUIT DIAGRAM(CP1)	N/A	
6	SD-FXXX-E111	1	0	CONTROL CIRCUIT DIAGRAM(CP1)	N/A	
7	SD-FXXX-E121	1	0	BLOCK DIAGRAM(CP1)	N/A	
8	SD-FXXX-E201	1	0	MAIN CIRCUIT DIAGRAM(CP2)	N/A	
9	SD-FXXX-E211	1	0	CONTROL CIRCUIT DIAGRAM(CP2)	N/A	
10	SD-FXXX-E212	1	0	CONTROL CIRCUIT DIAGRAM(CP2)	N/A	
11	SD-FXXX-E221	1	0	CONTROL CIRCUIT DIAGRAM(CP2)	N/A	
12	SD-FXXX-E222	1	0	CONTROL CIRCUIT DIAGRAM(CP2)	N/A	
13	SD-FXXX-E231	1	0	BLOCK DIAGRAM(CP2)	N/A	
14	SD-FXXX-EP11	1	0	CONTROL PENDANT LAYOUT(P1)	N/A	
15	SD-FXXX-EP21	1	0	CONTROL PENDANT LAYOUT(P2)	N/A	
16	SD-FXXX-EP31	1	0	CONTROL PANEL LAYOUT(CP1)	N/A	
17	SD-FXXX-EP41	1	0	CONTROL PANEL LAYOUT(CP2)	N/A	
18	SD-FXXX-EP51	1	0	OUTSIDE VIEW OF CONTROL PANEL DIAGRAM(CP1)	N/A	
19	SD-FXXX-EP61	1	0	OUTSIDE VIEW OF CONTROL PANEL DIAGRAM(CP2)	N/A	
20	SD-FXXX-ES11	1	0	VARIABLE SPEED CONTROLLER SETTING TABLE	N/A	
21	SD-FXXX-EW11	1	0	CABLE LIST(CP1)	N/A	
22	SD-FXXX-EW12	1	0	CABLE LIST(CP2)	N/A	
23	SD-FXXX-EW13	1	0	CABLE LIST(CP2)	N/A	
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Note:

**CONTROL PANEL EQUIPMENT LIST(CP1)**

Sales Order No.:		Customer/Project :	
Item No.:	1	Model No :	FUB-30
No. of Units :	1	Reference No.:	SD-F030-EC11
Revision :	2(10/03/09)		
Prepared By:		Approved By:	Issued To :

No.	GIN NUMBER	Symbol No.	Description	Type	Qty/Unit	Remarks
1	0370250932	MCB1	THERMAL MAGNETIC CIRCUIT BREAKER	GV2-L14(10A)	1	
2	0370250933	IS1	SWITCH DISCONNECTOR	OT16E3	1	
3	0370250934	MC0/MC1/MC2	3-POLE CONTACTOR	LC1-D09B7	3	
4	0370250935	VF1	VARIABLE SPEED CONTROLLER 2.2KW	ATV-31HU22N4	1	
5	0370250936	PT1	TRANSFORMER	IP:380/400/415/440/460/480V OP:230V/24V 300VA	1	
6	0370250937	FNP	CONTROL BOX COOLING BLOWER	2123HBT 230VAC (120 x 120 x 25)	1	
7	0370250938	--	VENTILATION KIT FOR CABINETS	36570 (138 mm x 138 mm)	1	
8	0370250939	CR1~CR5	RELAY	MY4N 24VAC	5	
9	0370250940	--	RELAY SOCKET	PYF14A-E	5	
10	0370250941	PB0, PB1	EMERGENCY STOP BUTTONS	XB4BS542	2	
11	0370250942	F1~F4	FUSE CARRIERS	15636	4	
12	0370250943	--	HRC CYLINDRICAL FUSE	10 x 38 4A	1	
13	0370250944	--	HRC CYLINDRICAL FUSES	10 x 38 2A	3	
14	0370250945	PB3/PB4	BUTTON FLUSH RETURN BLACK	XB4 BA2	2	
15	0370250946	PB2	BUTTON FLUSH RETURN RED	XB4 BA4	1	
16	0370250947	SW1	2 WAY LATCH SELECTOR SWITCH	XB4BD21	1	
17	0370250948	--	N/C CONTACT	ZBE102	3	
18	0370250949	CP1	CONTROL PANEL	H500xW700xD250	1	
19	0370250950	PL1	ILLUMINATED PUSHBUTTON	XB4-BW31B5 (White)	1	
20	0370250951	PL2	PILOT LIGHTS WITH INTEGRAL LED	XB4-BVB5 (Yellow)	1	
21	0370250952	TB1	TERMINAL BLOCK 2.5MM2	AB1 VV235U	11	
22	0370250953	--	TERMINAL BLOCK 4MM2	AB1 VV435U	13	
23	0370250954	--	TERMINAL BLOCK 4MM2 EARTH	AB1 TP435U	4	

**CONTROL PANEL EQUIPMENT LIST(CP1)**

Sales Order No.:		Customer/Project :	
Item No.:	1	Model No :	FUB-30
No. of Units :	1	Reference No.:	SD-F030-EC11
Revision :	2(10/03/09)		

Prepared By:	Approved By:	Issued To :

No.	GIN NUMBER	Symbol No.	Description	Type	Qty/Unit	Remarks
24	0370250955	--	TERMINAL BLOCK COVER 2.5MM~4MM	AB1 AC24	1	
25	0370250956	OL1	THERMAL OVERLOAD RELAY	LRD-08	1	
26	0370250957	--	OVERLOAD HOLDER	LAD-7B106	1	
27	0370250958	P1	PENDANT CONTROLLER	PR-TC	1	
28	0370250959	--	LEGEND HOLDERS FOR 8 x 27 mm	ZBY-2326 (POWER ON)	1	
29	0370250960	--	LEGEND HOLDERS FOR 8 x 27 mm	ZBY-4101 White	1	
30	0370250961	--	CIRCULAR LEGEND HOLDERS	ZBY-9330 (EMERGENCY STOP)	2	
31	0370250962	VR1	POTENTIOMETER 10K OHM	RV30YN20S-B103	1	
32	0370250963	--	POTENTIOMETER KNOB	RW100C	1	
33	0370250964	--	RELAY HOLD-DOWN CLIPS	PYC-A1	10	
34	0370250965	--	END STOPPER	BNL6P	2	
35	0370250966	--	SHAFT	OX5X250	1	
36	0370250967	--	CABLE GLAND	PG16	3	
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**CONTROL PANEL EQUIPMENT LIST(CP2)**

Sales Order No.:		Customer/Project :	
Item No.:	1	Model No :	FUB-30
No. of Units :	1	Reference No.:	SD-F030-EC21
Revision :	0(10/03/09)		

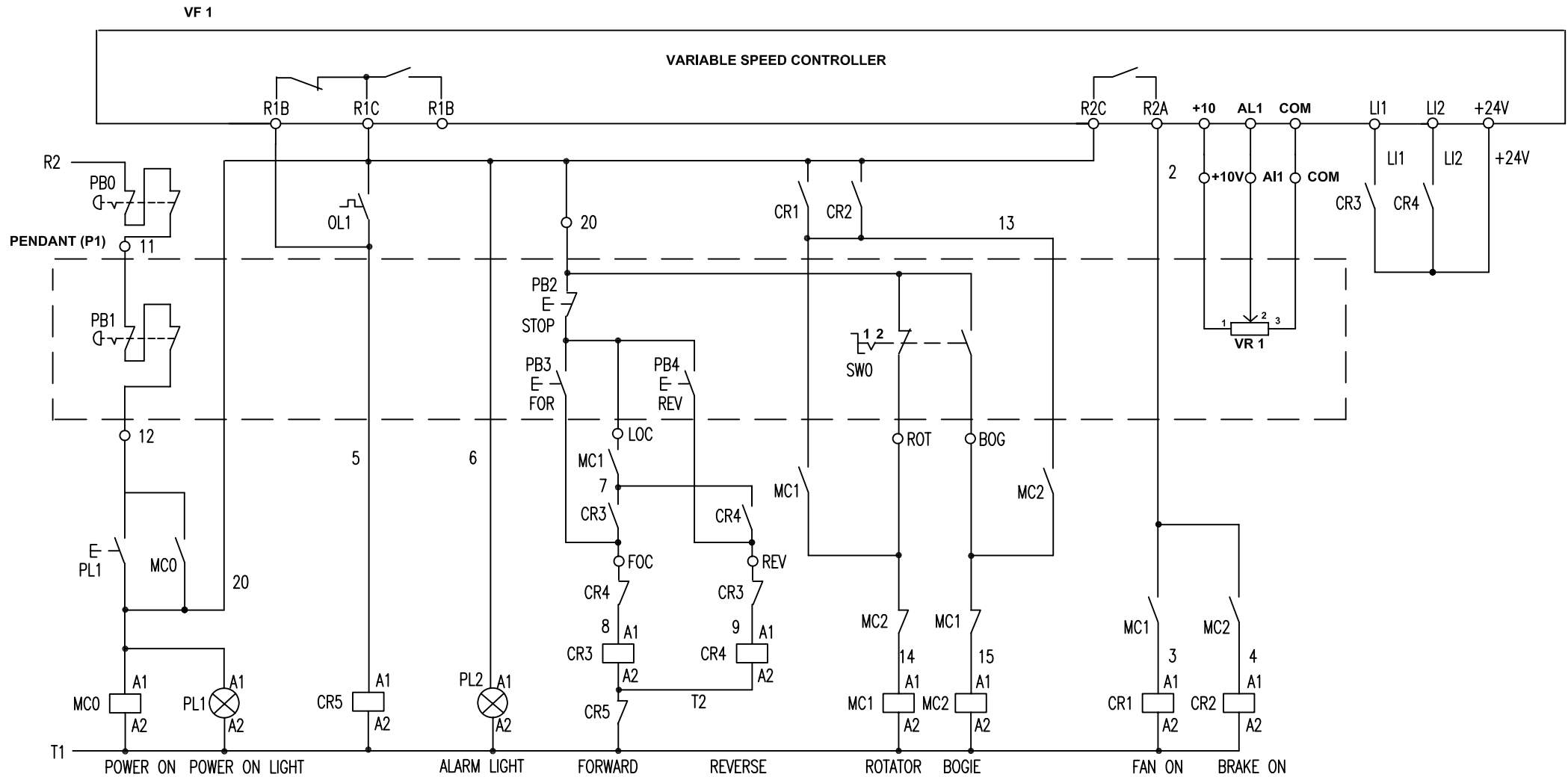
Prepared By:	Approved By:	Issued To :

No.	GIN NUMBER	Symbol No.	Description	Type	Qty/Unit	Remarks
1	0370250932	MCB1	THERMAL MAGNETIC CIRCUIT BREAKER	GV2-L14 (10A)	1	
2	0370250933	IS1	PADLOCK-ABLE EXTERNAL OPERATOR	OT16E3	1	
3	0370250968	PL1	PILOT LIGHTS WITH INTEGRAL LED	XB4-BVB1 (WHITE)	1	
4	0370250951	PL2	PILOT LIGHTS WITH INTEGRAL LED	XB4-BVB5 (YELLOW)	1	
5	0370250969	PT1	TRANSFORMER (200VA)	IP: 380/400/415/440/460V OP:24V	1	
6	0370250934	MC1	3-POLE CONTACTORS	LC1-D09B7	1	
7	0370250970	F1~F5	MODULAR FUSE CARRIERS	15636 (10 x 38)	5	
8	0370250971	--	HRC CYLINDRICAL FUSE	10 x 38 6A	2	
9	0370250944	--	HRC CYLINDRICAL FUSE	10 x 38 2A	3	
10	0370250956	OL1	DIFFERENTIAL THERMAL OVERLOAD RELAY	LRD-08 (2.5~4A)	1	
11	0370250957		TERMINAL BLOCK FOR OVERLOAD	LAD-7B106	1	
12	0370250972	CR0~CRB4	RELAY	MY4N SPCO AC24V	19	
13	0370250940	--	RELAY SOCKET FOR MY2N	PYF14A-E	19	
14	0370250964	--	RELAY HOLD-DOWN CLIPS	PYC-A1	38	
15	0370250973	CP1	CONTROL PANEL	H600 x W600 x D200	1	
16	0370250953	TB1	TERMINAL BLOCKS	AB1-VV435U (4mm²)	6	
17	0370250954	TB1	TERMINAL BLOCKS	AB1-TP435U (4mm²)	3	
18	0370250952	TB1	TERMINAL BLOCKS	AB1-VV235U (2.5mm²)	50	
19	0370250955	TB1	END COVERS	AB1-AC24	1	
20	0370250965	TB1	END STOPPER	BNL6P	2	
21	0370250974	TB1	OMEGA RAIL BRACKET	PEJ-M (METAL)	2	
22	0370250941	PB1	EMERGENCY STOP PUSHBUTTON	XB4-BS542	1	
23	0370250975	P2	CONTROL PENDANT	FUB-30	1	

Sales Order No.:		Customer/Project :	
Item No.:	1	Model No :	FUB-30
No. of Units :	1	Reference No.:	SD-F030-EC21
Revision :	0(10/03/09)		

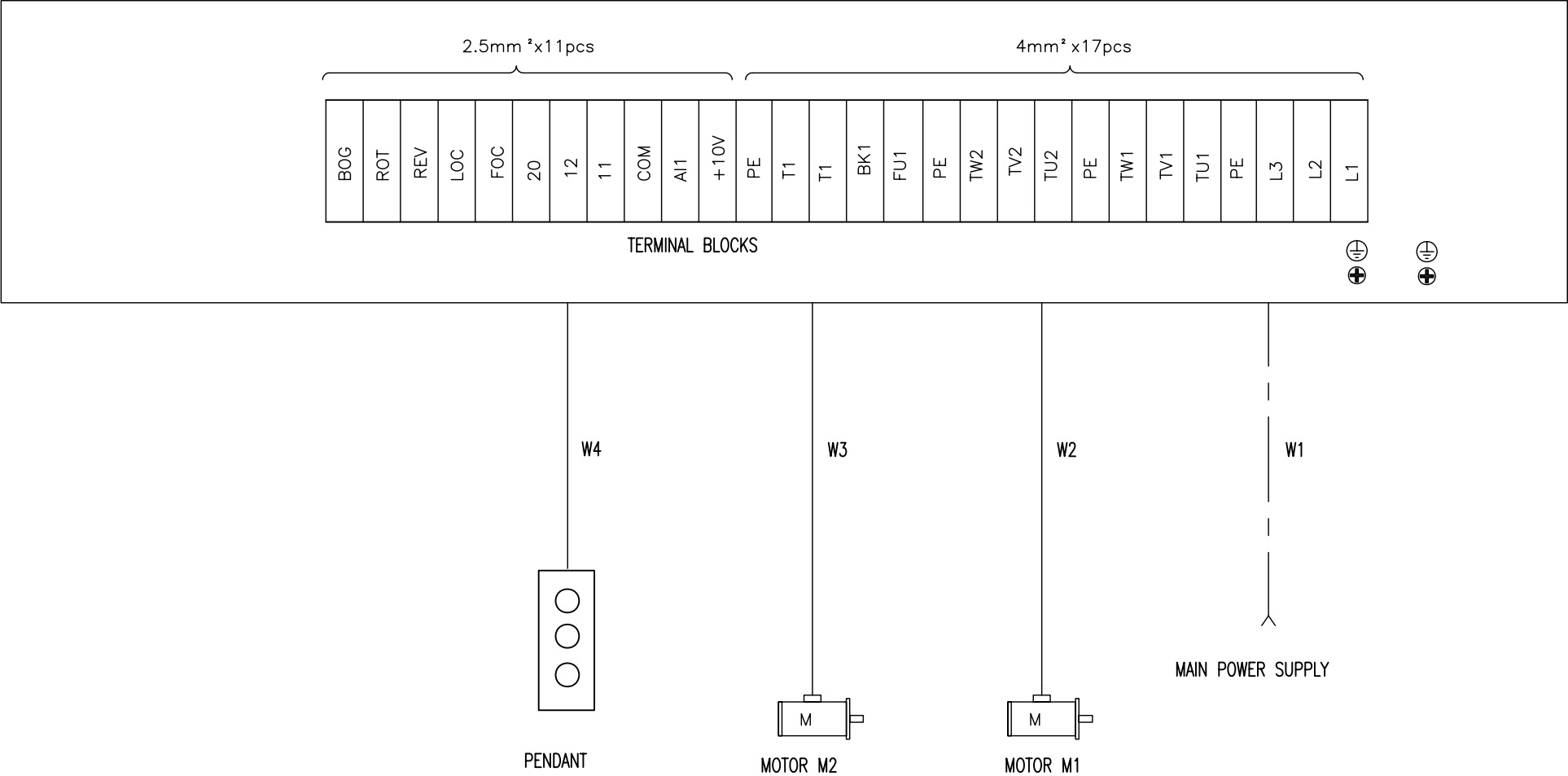
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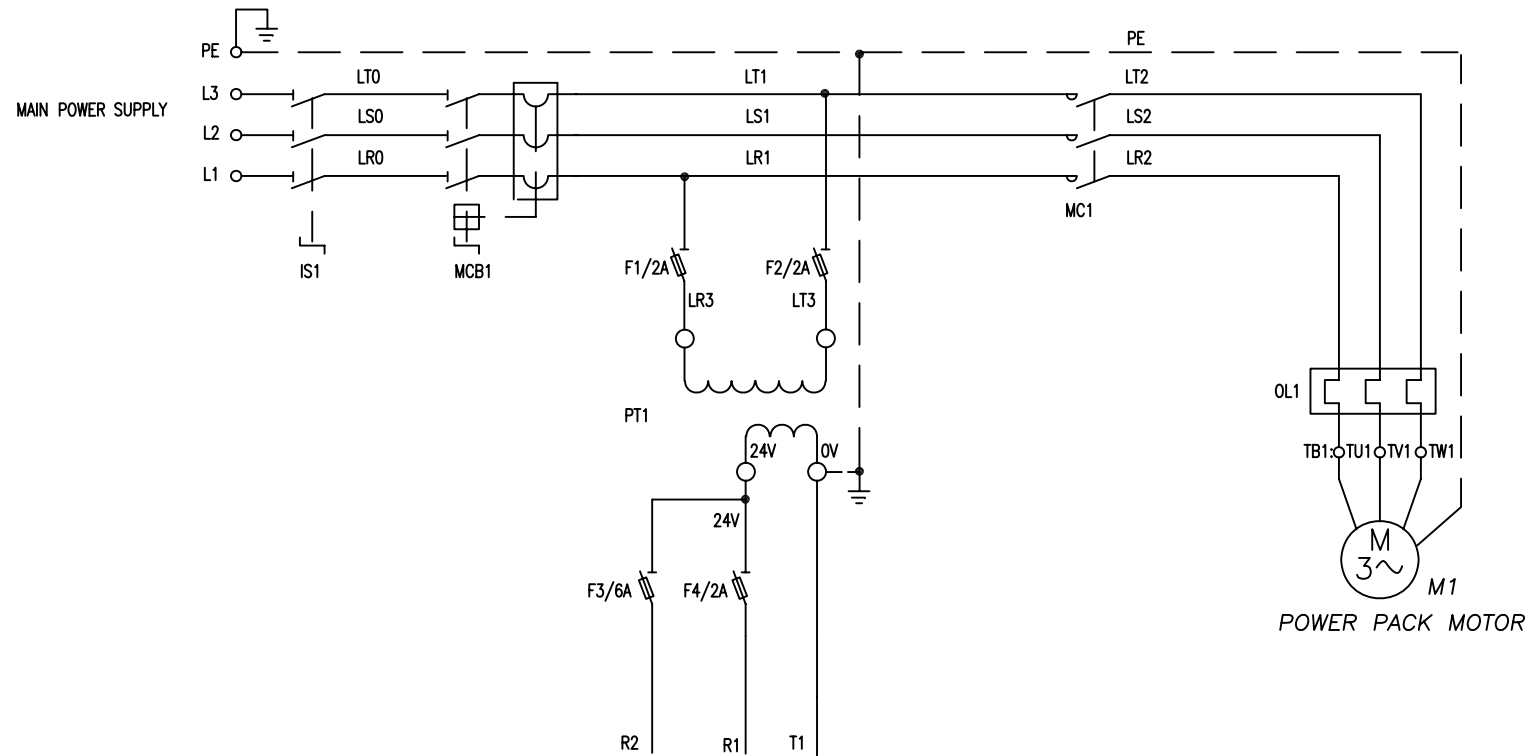
			PROJECT/MODEL :		
			FUB		
DRAWN			NAME	DATE	
			CHENBING	09/03/09	
APPROVED			DWG. NAME :		
			CONTROL CIRCUIT DIAGRAM(CP1)		
			DWG. NO. :		
			SD-FXXX-E111		
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CONTROL PANEL(CP1)

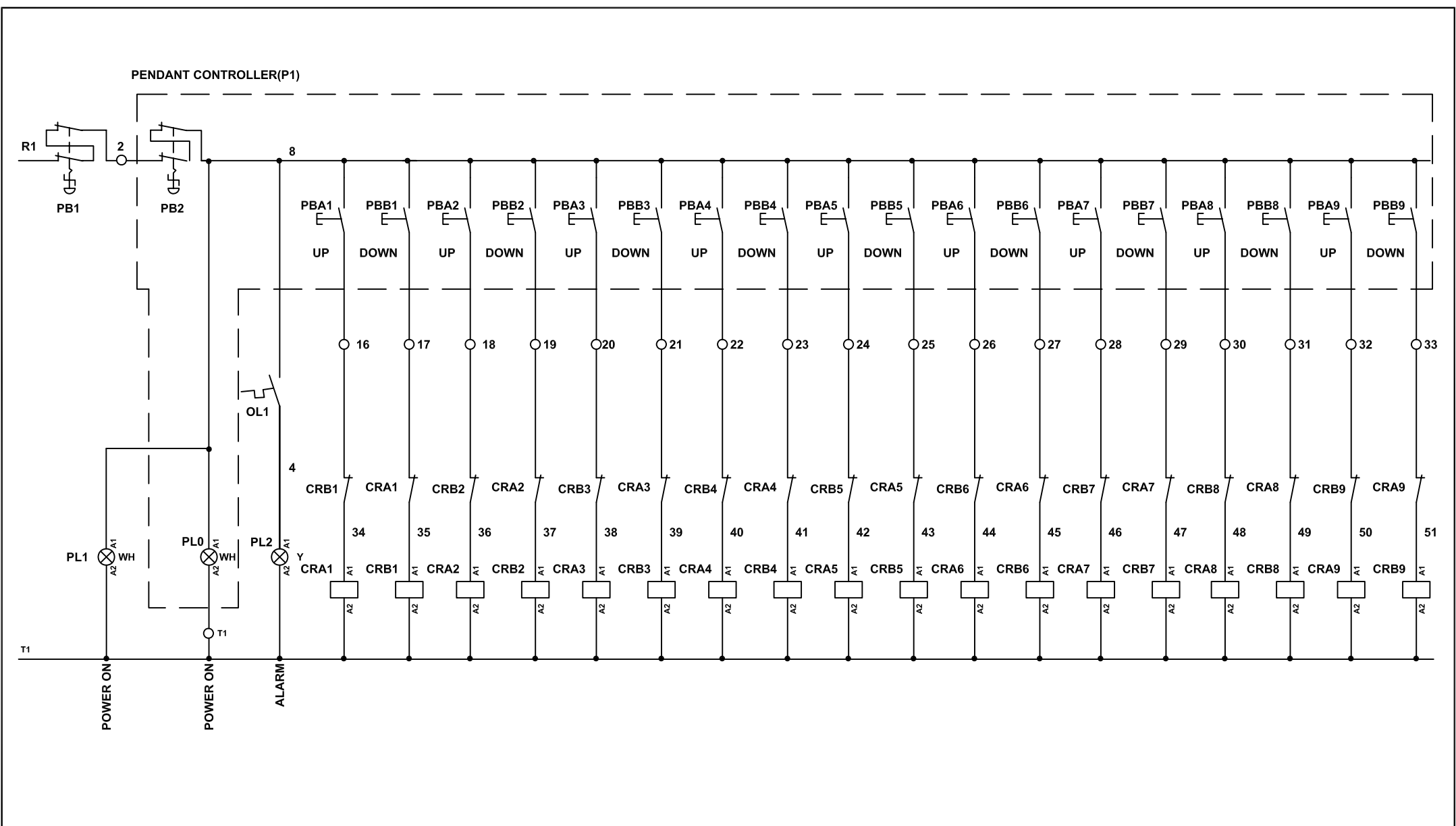




Note:
1. — Cable and cable management supply by client, cable need to be connected at site

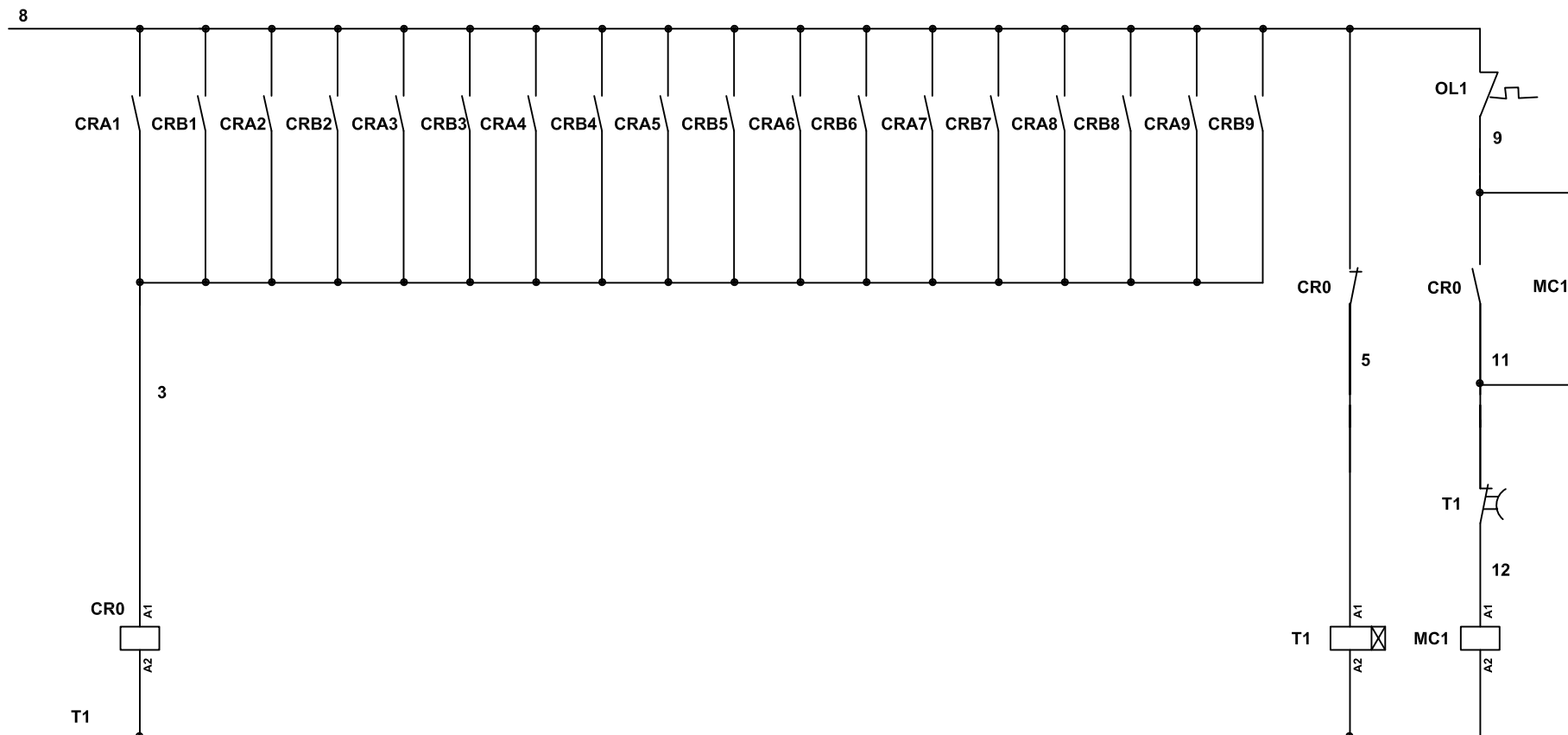
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	NAME	DATE	CLIENT :	
DRAWN	CHENBING	09/03/09		
APPROVED			DWG. NAME :	SCALE: N/A
			BLOCK DIAGRAM(CP1)	REVISION: 0
			DWG. NO. :	SHEET NO: 1 OF 1
		SD-FXXX-E121		
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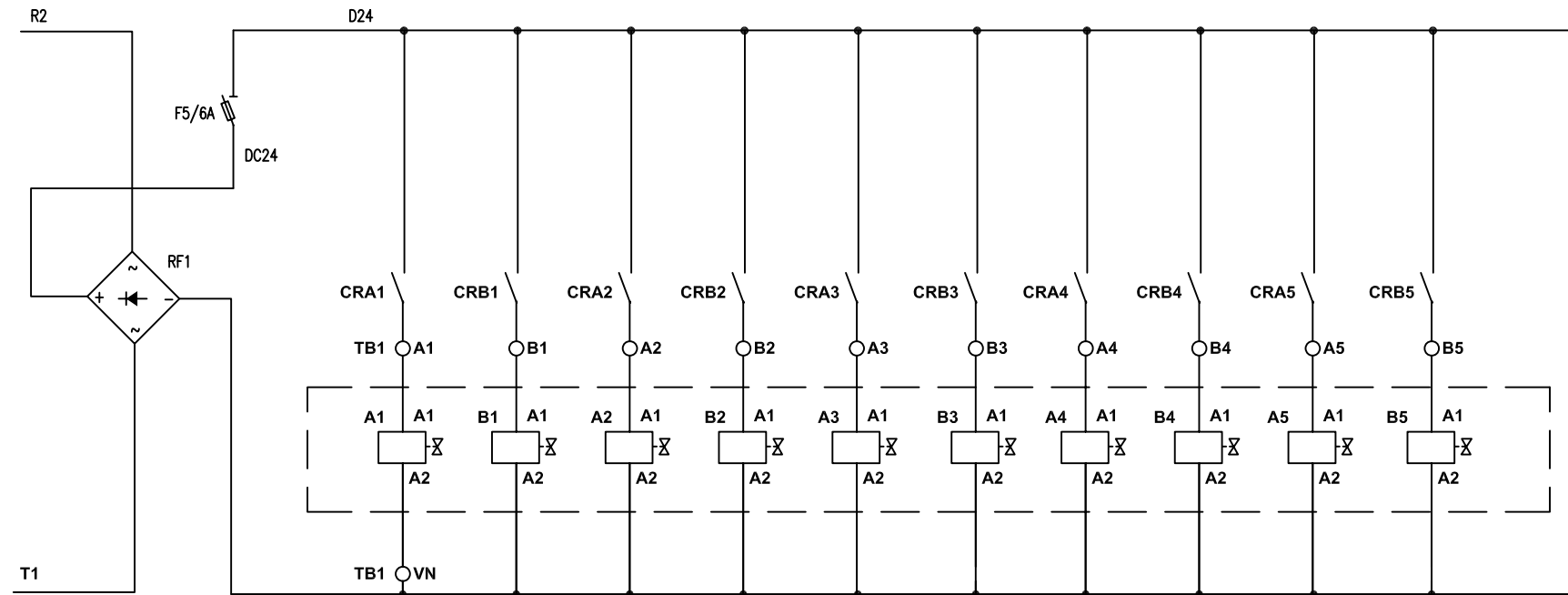
			PROJECT/MODEL : FUB	
			CLIENT :	
DRAWN	NAME CHENBING	DATE 10/03/09		
APPROVED		DWG. NAME : MAIN CIRCUIT DIAGRAM(CP2)		SCALE: N/A
		DWG. NO. : SD-FXXX-E201		REVISION: 0
		SHEET NO: 1 OF 1		
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			PROJECT/MODEL : FUB	
			CLIENT :	
	NAME	DATE		SCALE: N/A
DRAWN	CHENBING	10/03/09		REVISION: 0
APPROVED			DWG. NAME : CONTROL CIRCUIT DIAGRAM(CP2)	SHEET NO: 1 OF 1
			DWG. NO. : SD-FXXX-E211	
THE ORIGINAL AND ALL COPIES OF THIS DRAWING TOGETHER WITH THE COPYRIGHT THEREOF ARE THE SOLE PROPERTY OF R.P.E.I. PTE. LTD. SINGAPORE				

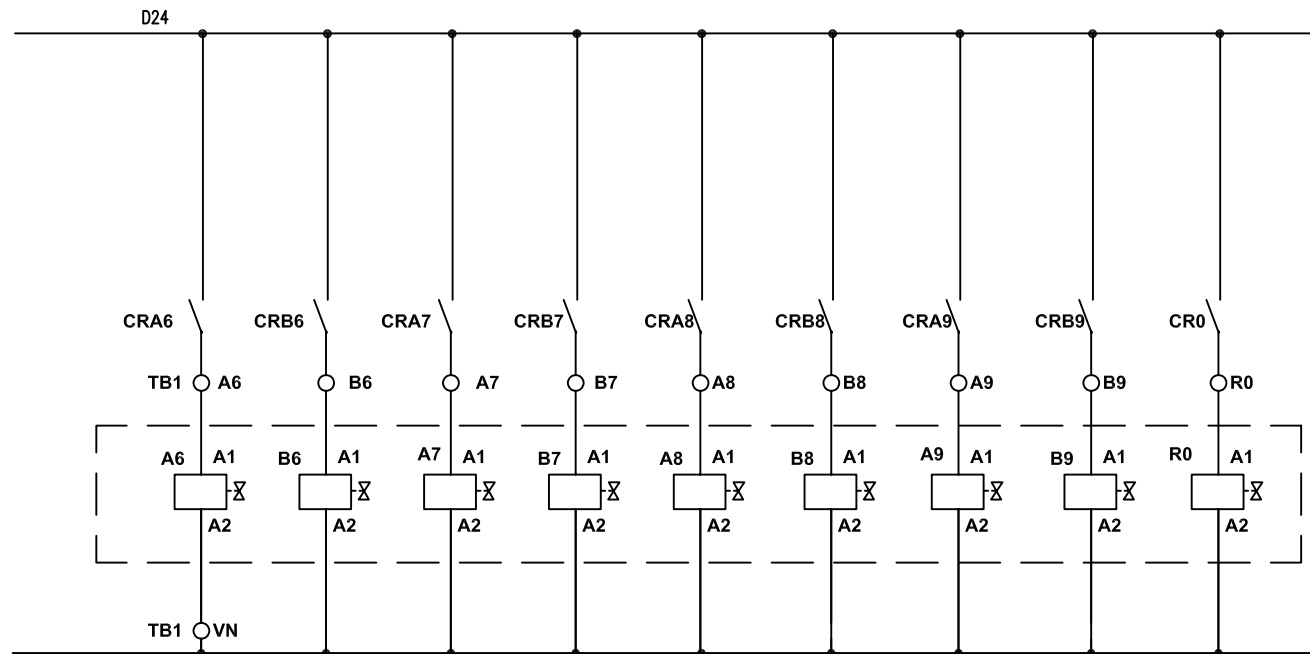




			PROJECT/MODEL :	
			FUB	
			CLIENT :	
DRAWN	NAME CHENBING	DATE 10/03/09		
APPROVED			DWG. NAME :	SCALE: N/A REVISION: 0
			CONTROL CIRCUIT DIAGRAM(CP2)	
			DWG. NO. :	SHEET NO 1 OF 1
			SD-FXXX-E212	
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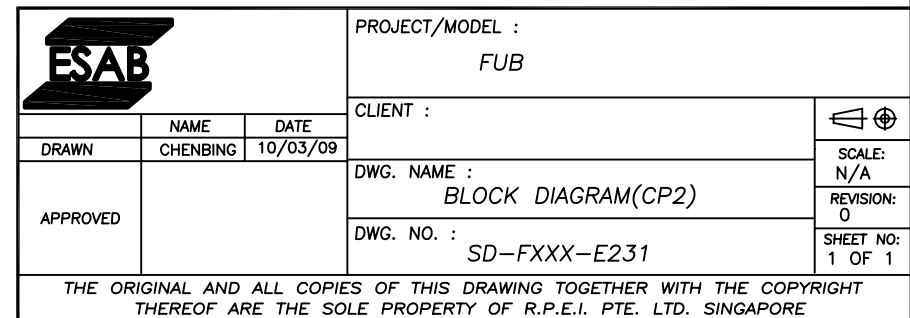


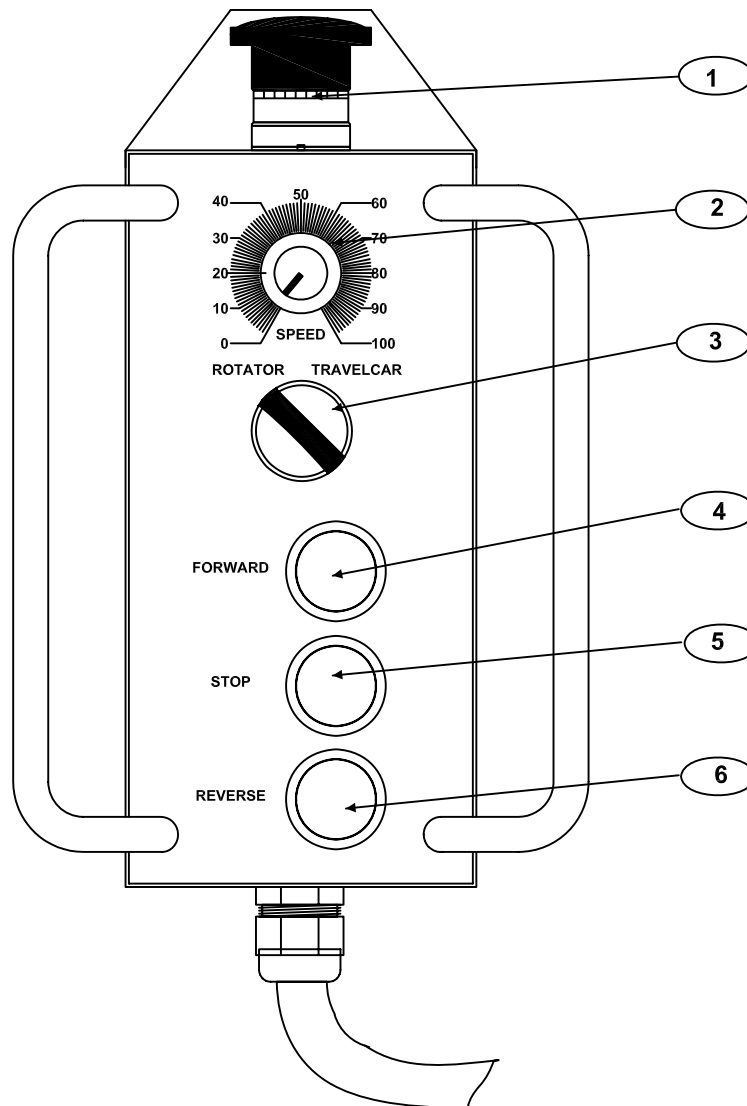
			PROJECT/MODEL :							
			FUB							
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			DRAWN	NAME	DATE					
CHENBING		10/03/09								
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			APPROVED							
CONTROL CIRCUIT DIAGRAM(CP2)										
			DWG. NO. :							
			SD-FXXX-E221							
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SCALE:
N/A
REVISION:
0
SHEET NO:
1 OF 1





			PROJECT/MODEL :	
			FUB	
DRAWN CHENBING			CLIENT :	
			SCALE: N/A	
APPROVED			DWG. NAME :	REVISION: 0
			CONTROL CIRCUIT DIAGRAM(CP2)	
THE ORIGINAL AND ALL COPIES OF THIS DRAWING TOGETHER WITH THE COPYRIGHT THEREOF ARE THE SOLE PROPERTY OF R.P.E.I. PTE. LTD. SINGAPORE			DWG. NO. :	SHEET NO: 1 OF 1
			SD-FXXX-E222	

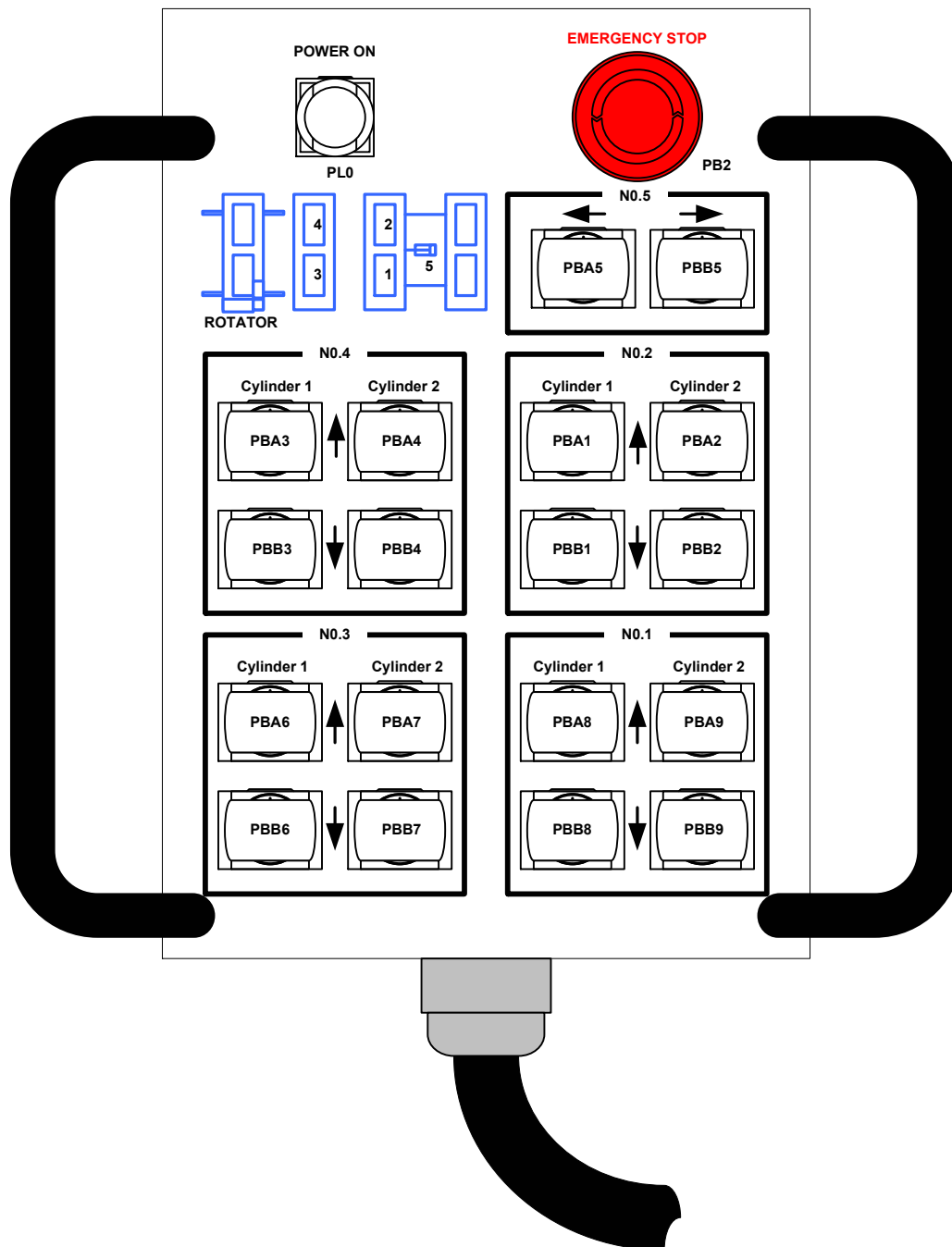
[illegible]



Specification of Pendant Controller



1	PB1	E.STOP
2	VR1	ROLLER OR TRAVELCAR SPEED ADJUST.
3	SW0	ROLLER OR TRAVELCAR SELECTOR SWITCH.
4	PB3	ROLLER OR TRAVELCAR FORWARD BUTTON.
5	PB2	ROLLER STOP BUTTON.
6	PB4	ROLLER OR TRAVELCAR REVERSE BUTTON.

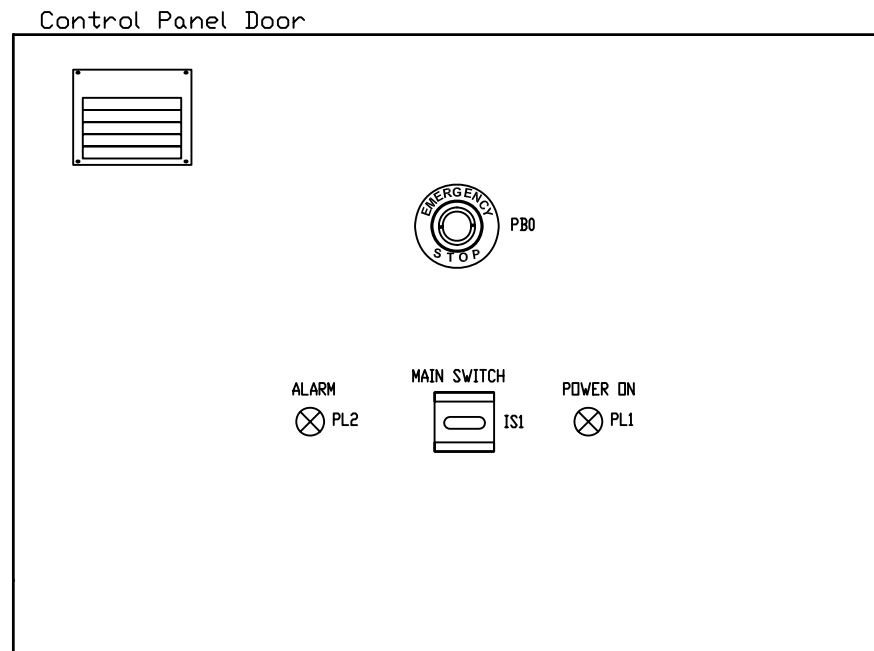
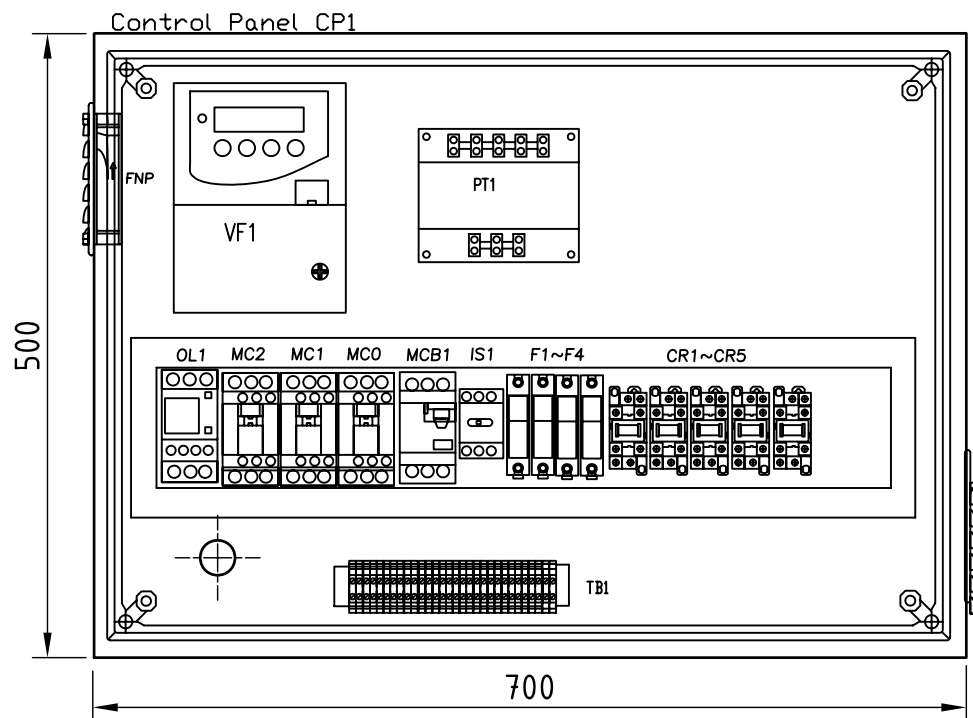
			PROJECT/MODEL : FUB	
			CLIENT :	
NAME	DATE			
DRAWN	CHENBING	10/03/09		
APPROVED			DWG. NAME : CONTROL PENDANT LAYOUT(P1)	SCALE: N/A
			DWG. NO. : SD-FXXX-EP11	REVISION: 0
			SHEET NO: 1 OF 1	
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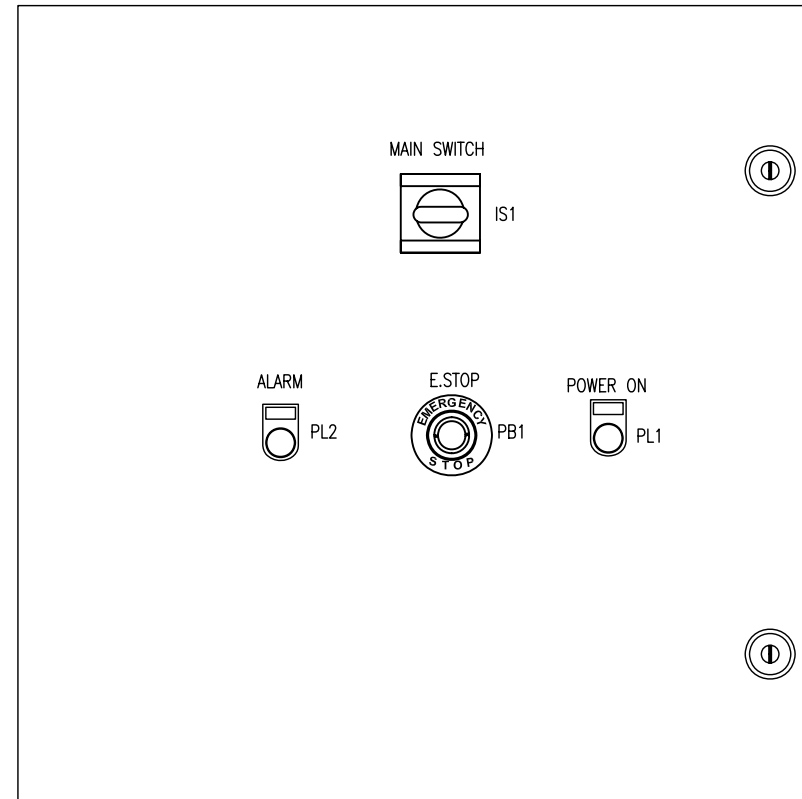
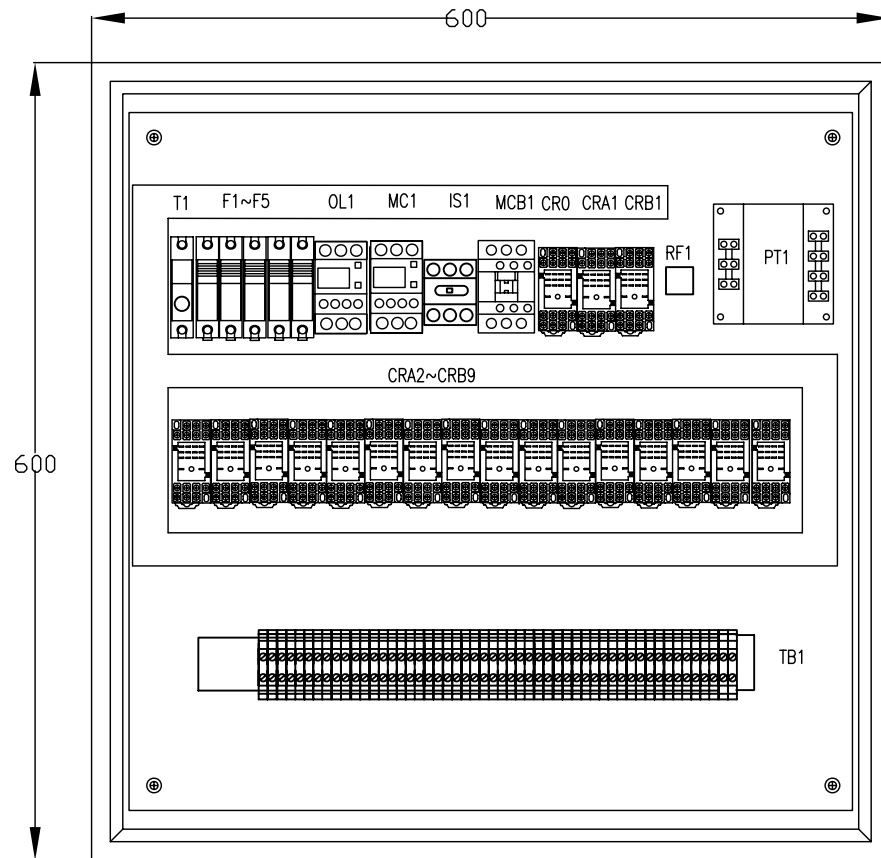
SPECIFICATION FOR PENDANT CONTROLLER



1	PBA9	NO.1 TOP CYLINDER UP
2	PBB9	NO.1 TOP CYLINDER DOWN
3	PBA8	NO.1 BOTTOM CYLINDER UP
4	PBB8	NO.1 BOTTOM CYLINDER DOWN
5	PBA2	NO.2 TOP CYLINDER UP
6	PBB2	NO.2 TOP CYLINDER DN
7	PBA1	NO.2 BOTTOM CYLINDER UP
8	PBB1	NO.2 BOTTOM CYLINDER DN
9	PBA7	NO.3 TOP CYLINDER UP
10	PBB7	NO.3 TOP CYLINDER DN
11	PBA6	NO.3 BOTTOM CYLINDER UP
12	PBB6	NO.3 BOTTOM CYLINDER DN
13	PBA4	NO.4 TOP CYLINDER UP
14	PBB4	NO.4 TOP CYLINDER DN
15	PBA3	NO.4 BOTTOM CYLINDER UP
16	PBB3	NO.4 BOTTOM CYLINDER DN
17	PBA5	NO.5 CYLINDER LEFT
18	PBB5	NO.5 CYLINDER RIGHT
19	PL0	POWER ON
20	PB2	EMERGENCY STOP

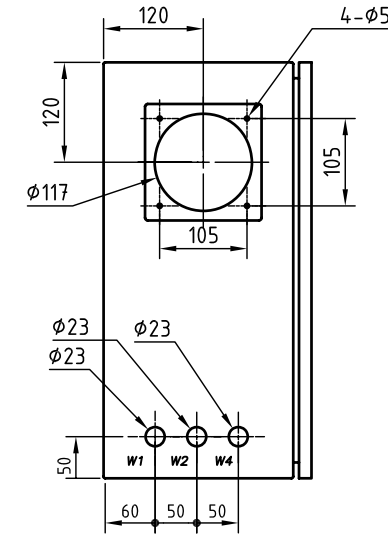
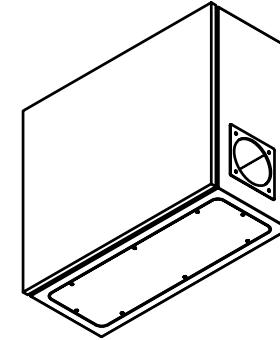
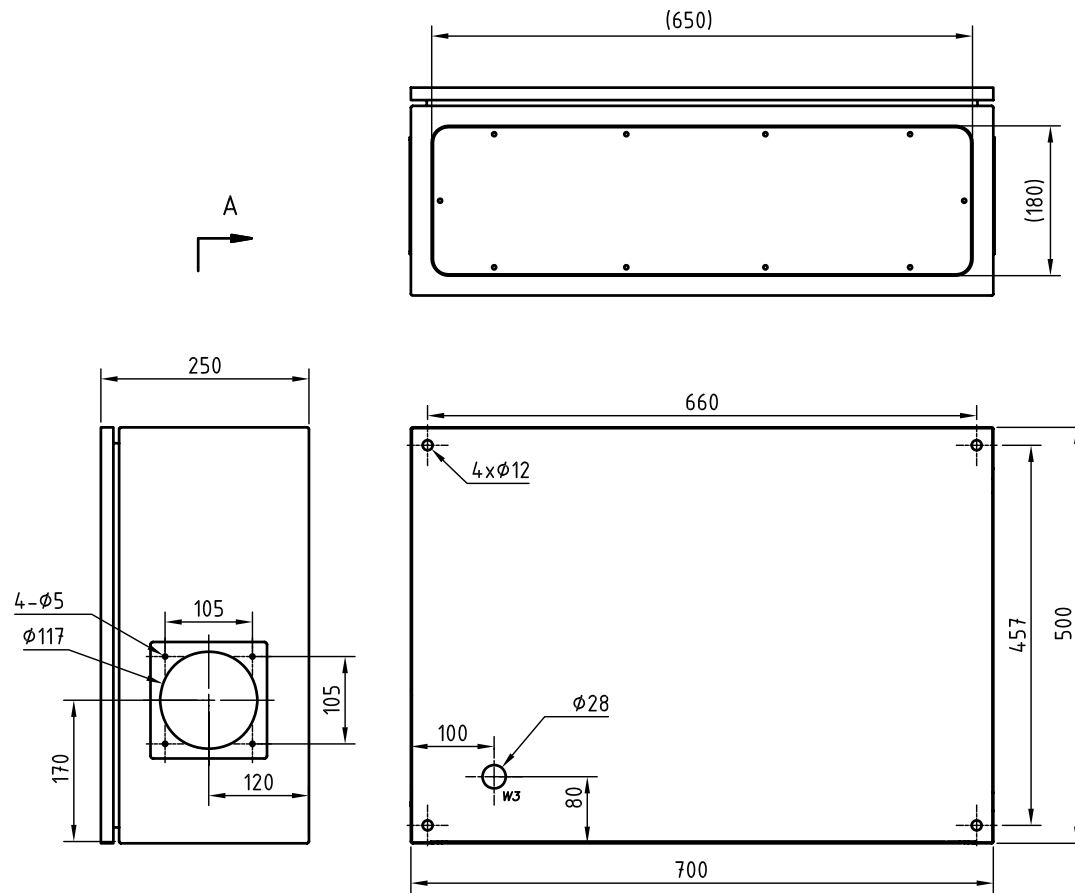
			PROJECT/MODEL :	
			FUB	
	NAME	DATE	CLIENT :	
DRAWN	MARK	26-03-09		
APPROVED			DWG NAME : CONTROL PENDANT LAYOUT(P2)	SCALE: 1:50
			DWG NO. : SD-FXXX-EP21	REVISION: 0
				SHEET NO: 1 OF 1
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			PROJECT/MODEL : FUB	
			CLIENT :	
DRAWN	NAME CHENBING	DATE 24/02/09	DWG. NAME : Control Panel Layout(CP1)	
APPROVED				DWG. NO. : SD-FXXX-EP31
				REVISION: 0
			SHEET NO. 1 OF 1	
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			PROJECT/MODEL : FUB	
			CLIENT :	
DRAWN	NAME CHENBING	DATE 17/11/08		
APPROVED		DWG. NAME : Outside View of Control Panel Diagram(CP2)		SCALE: N/A
		DWG. NO. : SD-FXXX-EP41		REVISION: 0
			SHEET NO: 1 OF 1	
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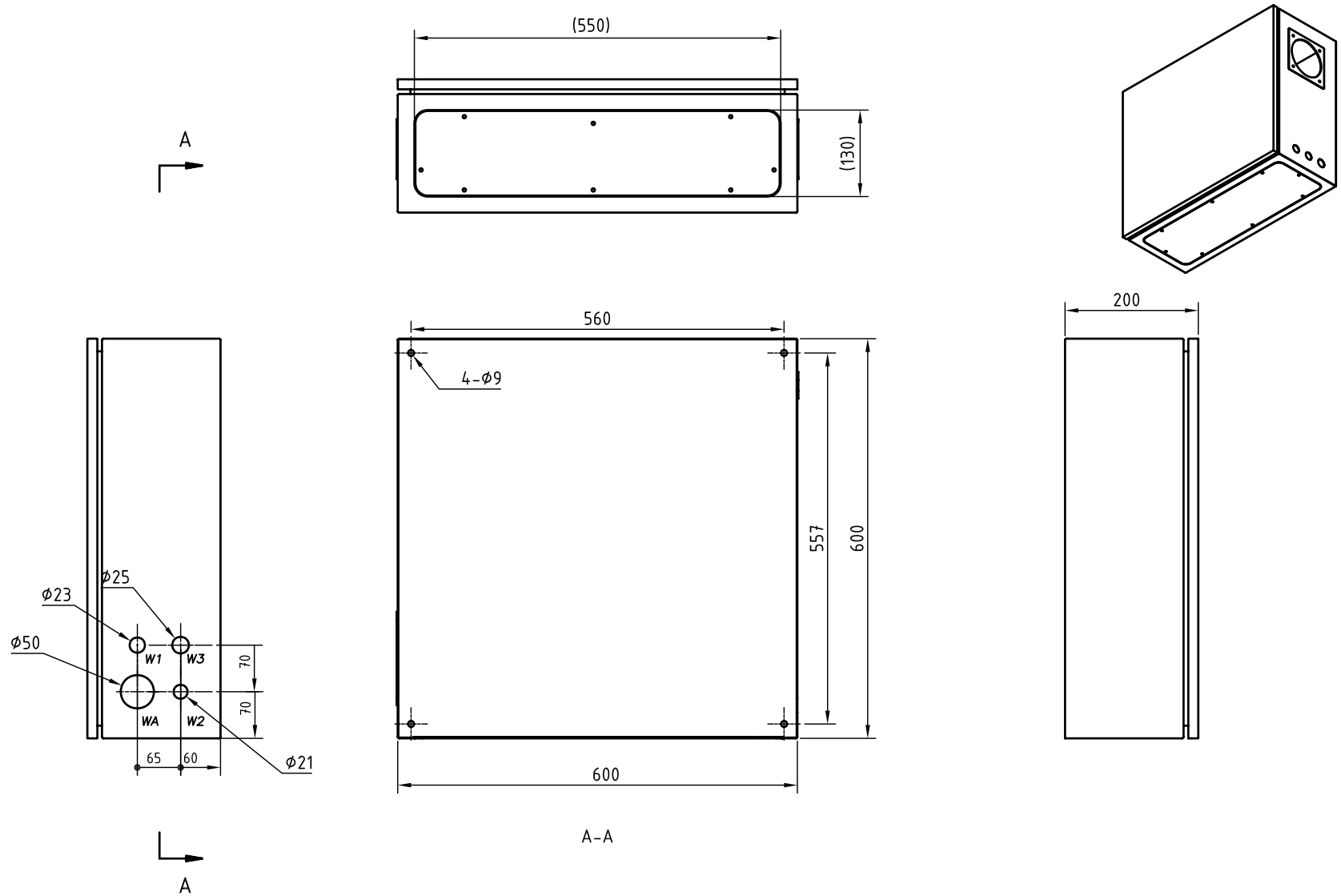


A-A

Note :



1. W1: For cable to mian power supply(PG16).
2. W2: For cable to rotation motor M1(PG16).
3. W3: For cable rotation motor M2.
4. W4: For cable to pendant(PG16).

			PROJECT/MODEL : FUB	
			CLIENT :	
DRAWN	NAME CHENBING	DATE 24/02/09		
APPROVED		DWG. NAME : Outside View of Control Panel Diagram(CP1)		SCALE: N/A
		DWG. NO. : SD-RXXX-EP51		REVISION: 0
				SHEET NO: 1 OF 1
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


Note :

1. W1: For cable to mian power supply(PG16).
2. W2: For cable to motor M1(PG13.5).
3. W3: For cable to pendnt(ISO25).
4. WA: For cable to all cylinder values(ISO50).


			PROJECT/MODEL : FUB	
			CLIENT :	
DRAWN	NAME CHENBING	DATE 17/02/09		
APPROVED			DWG. NAME : Outside View of Control Panel Diagram(CP2)	SCALE: N/A
			DWG. NO. : SD-FXXX-EP61	REVISION: 0
			SHEET NO: 1 OF 1	
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Settings menu

SEt - 


Code	Factory setting	Romar Setting
ACC	3 s	3 s
dEC	3 s	1.5 s
LSP	0 Hz	5 Hz
HSP	bFr	50 Hz
Ftd	bFr	0 Hz

Motor control menu





drC - 

Code	Factory setting	Romar Setting
bFr	50 Hz	50Hz
UnS	According to drive rating	400
FrS	50 Hz	50 Hz
tFr	60 Hz	50 Hz

I/O menu

I - O - 

Code	Factory setting	Romar Setting
tCC	2C	2 C
r2	nO	rUn

			PROJECT/MODEL :							
			FUB							
<table border="1"> <tr> <td></td> <td>NAME</td> <td>DATE</td> </tr> <tr> <td>DRAWN</td> <td>CHENBING</td> <td>04/03/09</td> </tr> </table>				NAME	DATE	DRAWN	CHENBING	04/03/09	CLIENT :	
				NAME	DATE					
DRAWN	CHENBING	04/03/09								
<table border="1"> <tr> <td>APPROVED</td> <td></td> </tr> </table>			APPROVED		<table border="1"> <tr> <td> DWG. NAME : <i>Variable Speed Controller Settnng Table</i> </td> <td rowspan="2">  </td> </tr> <tr> <td> DWG. NO. : SD-FXXX-ES11 </td> </tr> </table>		DWG. NAME : <i>Variable Speed Controller Settnng Table</i>		DWG. NO. : SD-FXXX-ES11	
			APPROVED							
DWG. NAME : <i>Variable Speed Controller Settnng Table</i>										
DWG. NO. : SD-FXXX-ES11										
			SCALE: N/A REVISION: 0 SHEET NO: 1 OF 1							
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ROMAR POSITIONING EQUIPMENT INTERNATIONAL PTE LTD



CABLE LIST(CP1)

[illegible]

ROMAR POSITIONING EQUIPMENT INTERNATIONAL PTE LTD



CABLE LIST(CP2)

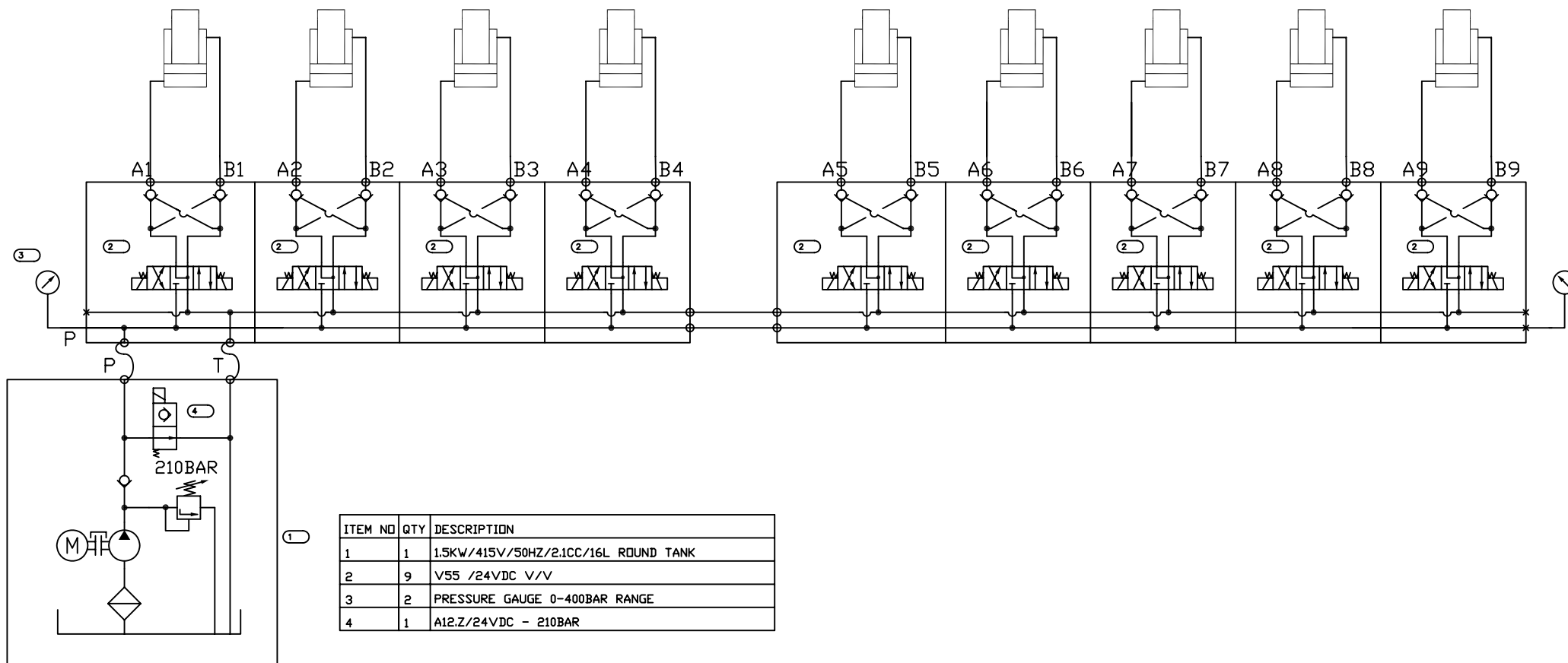
Customer/Project :					Prepared By:				Approved By:				Issued To :							
Model No. :			FUB																	
Reference No.:			SD-FXXX-EW12																	
Revision :			0																	
Cable No.	Cable Size	Est.Length	FROM	TO																
W1	2.5mm2 x 4C		MAIN POWER SUPPLY	CONTROL PANEL	Cable Code	1	2	3	Yellow/Green											
					Wring No.	L1	L2	L3	PE											
W2	2.5mm2 x 4C		CONTROL PANEL	HYDRAULIC MOTOR(M9)	Cable Code	1	2	3	Yellow/Green											
					Wring No.	TU1	TV1	TW1	PE											
W3	1.0mm2 x 25C		CONTROL PANEL	PENDANT	Cable Code	1	2	3	4	5	6	7	8	9	10	11	12			
					Wring No.	T1	2	8	16	17	18	19	20	21	22	23	24			
					Cable Code	13	14	15	16	17	18	19	20	21	22	23	24			
					Wring No.	25	26	27	28	29	30	31	32	33						
					Cable Code	Yellow/Green														
					Wring No.	PE														
W4	0.75mm2 x 3C		CONTROL PANEL	SOLENOID VALUE R0	Cable Code	1	2	Yellow/Green												
					Wring No.	R0	VN	PE												
W5	0.75mm2 x 3C		CONTROL PANEL	SOLENOID VALUE A1	Cable Code	1	2	Yellow/Green												
					Wring No.	A1	VN	PE												
W6	0.75mm2 x 3C		CONTROL PANEL	SOLENOID VALUE B1	Cable Code	1	2	Yellow/Green												
					Wring No.	B1	VN	PE												
W7	0.75mm2 x 3C		CONDROL PANEL	SOLENOID VALUE A2	Cable Code	1	2	Yellow/Green												
					Wring No.	A2	VN	PE												
W8	0.75mm2 x 3C		CONTROL PANEL	SOLENOID VALUE B2	Cable Code	1	2	Yellow/Green												
					Wring No.	B2	VN	PE												
W9	0.75mm2 x 3C		CONTROL PANEL	SOLENOID VALUE A3	Cable Code	1	2	Yellow/Green												
					Wring No.	A3	VN	PE												
W10	0.75mm2 x 3C		CONTROL PANEL	SOLENOID VALUE B3	Cable Code	1	2	Yellow/Green												
					Wring No.	B3	VN	PE												
W11	0.75mm2 x 3C		CONTROL PANEL	SOLENOID VALUE A4	Cable Code	1	2	Yellow/Green												
					Wring No.	A4	VN	PE												
W12	0.75mm2 x 3C		CONTROL PANEL	SOLENOID VALUE B4	Cable Code	1	2	Yellow/Green												
					Wring No.	B4	VN	PE												
W13	0.75mm2 x 3C		CONTROL PANEL	SOLENOID VALUE A5	Cable Code	1	2	Yellow/Green												
					Wring No.	A5	VN	PE												
W14	0.75mm2 x 3C		CONTROL PANEL	SOLENOID VALUE B5	Cable Code	1	2	Yellow/Green												
					Wring No.	B5	VN	PE												
W15	0.75mm2 x 3C		CONTROL PANEL	SOLENOID VALUE A6	Cable Code	1	2	Yellow/Green												
					Wring No.	A6	VN	PE												
W16	0.75mm2 x 3C		CONTROL PANEL	SOLENOID VALUE B6	Cable Code	1	2	Yellow/Green												
					Wring No.	B6	VN	PE												

ROMAR POSITIONING EQUIPMENT INTERNATIONAL PTE LTD



CABLE LIST(CP2)

Customer/Project :					Prepared By:				Approved By:				Issued To :				
Model No. :			FUB														
Reference No.:			SD-FXXX-EW13														
Revision :			0														
Cable No.	Cable Size	Est.Length	FROM	TO													
W17	0.75mm2 x 3C		CONTROL PANEL	SOLENOID VALUE A7	Cable Code	1	2	Yellow/Green									
					Wring No.	A7	VN	PE									
W18	0.75mm2 x 3C		CONTROL PANEL	SOLENOID VALUE B7	Cable Code	1	2	Yellow/Green									
					Wring No.	B7	VN	PE									
W19	0.75mm2 x 3C		CONTROL PANEL	SOLENOID VALUE A8	Cable Code	1	2	Yellow/Green									
					Wring No.	A8	VN	PE									
W20	0.75mm2 x 3C		CONTROL PANEL	SOLENOID VALUE B8	Cable Code	1	2	Yellow/Green									
					Wring No.	B8	VN	PE									
W21	0.75mm2 x 3C		CONTROL PANEL	SOLENOID VALUE A9	Cable Code	1	2	Yellow/Green									
					Wring No.	A9	VN	PE									
W22	0.75mm2 x 3C		CONTROL PANEL	SOLENOID VALUE B9	Cable Code	1	2	Yellow/Green									
					Wring No.	B9	VN	PE									
					Cable Code												
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Bosch Rexroth Pte. Ltd.

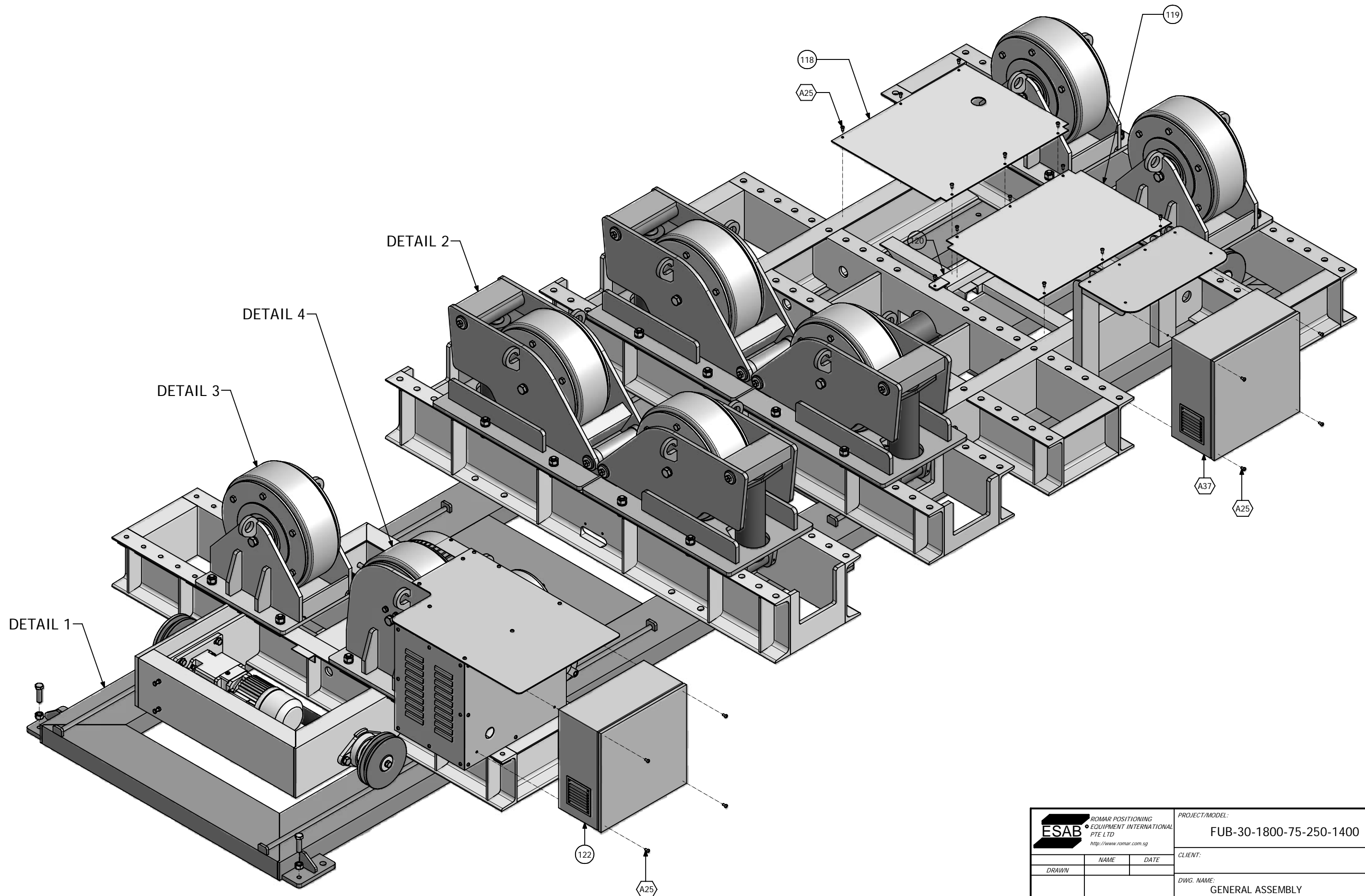
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 19, KIAN TECK WAY 15D, TUAS ROAD
 SINGAPORE 628740 SINGAPORE 638520
 TEL: (65) 265 6033 (65) 861 8733
 FAX: (65) 265 0813 (65) 861 1825
 GST REG. NO. M2-0026573-4



Rexroth
Bosch Group

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DATE 07/06/2006	SCALE NOT TO SCALE


MESSR	ROMAR POSITIONING
TITLE	1.5KW/16LTRS ROUND TANK

DRAWING NO SJ4556



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			GENERAL ASSEMBLY	TO SCALE
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			SD-F030-A101	0
				SHEET NO.:
				1 OF 5
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PARTS LIST					PARTS LIST				
ITEM	GIN NUMBER	DESCRIPTION	QTY	REMARKS	ITEM	GIN NUMBER	DESCRIPTION	QTY	REMARKS
101	0370250984	SHAFT	4		A04	-	BOLT, HEX, M14x35, GR8.8, GL	2	
102	-	CAP, END	16		A05	-	BOLT, HEX, M14x45, GR8.8, GL	3	
103	0370250985	SHAFT	8		A06	-	BOLT, HEX, M16x30, GR8.8, GL	8	
104	-	BOLT, HEX, M16x35, GR8.8, GL	8		A07	-	BOLT, HEX, M16x40, GR8.8, GL	12	
105	-	CAP, WHEEL	8		A08	-	BOLT, HEX, M20x65, GR8.8, GL	16	
106	0370250986	SHAFT, CYLINDER, 3	2		A09	-	BOLT, HEX, M20x70, GR8.8, GL	6	
107	0370250987	SHAFT, DRIVEN, TRAVEL CAR	3		A10	-	BOLT, HEX, M22x75, GR8.8, GL	32	
108	0370250988	SHAFT, DRIVE, TRAVEL CAR	1		A11	-	BOLT, HEX, M24x50, GR8.8, GL	16	
109	0370250989	WHEEL, STEEL, TRAVEL CAR	8		A12	-	CYLINDER, HYDRAULIC, A	4	
110	0370250990	GEAR, PINION	1		A13	-	CYLINDER, HYDRAULIC, B	1	
111	-	FRAME, BASE	4		A14	0370250992	GEARBOX RPE-RHX-135-600-3-F-IEC	1	
112	-	FRAME	4		A15	-	KEY, DOUBLE ROUND, 12x10x70L	1	
113	-	STRUCTURE, TRAVEL CAR	1		A16	-	KEY, SINGLE ROUND, 12x10x55L	8	
114	-	FRAME, IDLER, HYDRAULIC	1		A17	-	KEY, SINGLE ROUND, 18x12x52L	1	
115	-	STRUCTURE, TRAVEL CAR	1		A18	-	KEY, SINGLE ROUND, 18x12x168L	1	
116	-	PLATE, BASE, GEARMOTOR	1		A19	0370250888	MOTOR, 2.2kW AC	1	c/w Forced Cooling Fan
117	-	TRACK, TRAVEL CAR	1		A20	0370250993	MOTOR, GEARED, 1.1kW AC	1	
118	-	COVER, 1	1		A21	-	NUT, HEX, M10, GR8.8, GL	2	
119	-	COVER, 2	1		A22	-	NUT, HEX, M20, GR8.8, GL	6	
120	-	SUPPORT, COVER	1		A23	-	NUT, HEX, M22, GR8.8, GL	32	
121	0370250991	GEAR, DRIVEN	1		A24	0370250994	RING, RETAINING, EXTERNAL, STW50	4	
122	-	PANEL, ELECTRICAL	1		A25	-	SCREW, CAP, BUTTON HEAD, M8x16, GR8.8, GL	22	
123	0370250407	GEAR, PINION, M8x19Tx49	1		A26	-	SCREW, CAP, SOCKET HEAD, M12x35, GR8.8, GL	2	
124	0370250357	SHAFT, GEARBOX	1		A27	-	SCREW, SET, SOCKET, FLAT POINT, M10x16, GR8.8, GL	2	
125	-	PLATE, LOCK	1		A28	-	SCREW, SET, SOCKET, FLAT POINT, M10x20, GR8.8, GL	2	
126	-	CAP, END, GEAR, PINION	1		A29	-	SCREW, SET, SOCKET, FLAT POINT, M12x16, GR8.8, GL	2	
127	-	CAP, END, GEARBOX	1		A30	-	WASHER, SPRING, M10, GR8.8, GL	8	
128	-	FRAME, POWER, PRIMARY	1		A31	-	WASHER, SPRING, M14, GR8.8, GL	5	
129	0370250356	MODULE, TIRE, POWER	1		A32	-	WASHER, SPRING, M16, GR8.8, GL	12	
130	-	FRAME, IDLER	3		A33	-	WASHER, SPRING, M20, GR8.8, GL	16	
131	-	MODULE, TIRE, IDLER	7		A34	-	WASHER, SPRING, M22, GR8.8, GL	32	
A01	-	BEARING, FLANGED, UCFL213D1	8		A35	-	WASHER, SPRING, M24, GR8.8, GL	16	
A02	-	BOLT, HEX, M10x25, GR8.8, GL	8		A36	-	WASHER, TAPER, M22, GR8.8, GL	32	
A03	-	BOLT, HEX, M10x120, GR8.8, GL	2		A37	-	PANEL, ELECTRICAL	1	

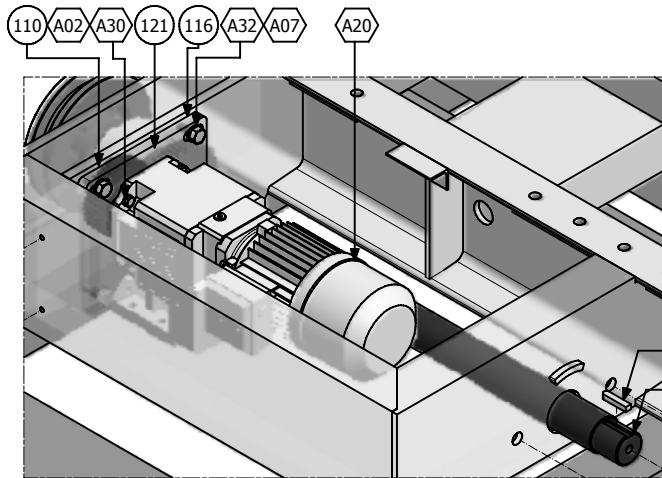
 ROMAR POSITIONING EQUIPMENT INTERNATIONAL PTE LTD http://www.romar.com.sg		PROJECT/MODEL:							
		FUB-30-1800-75-250-1400							
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			NAME	DATE					
DRAWN									
<table border="1"> <tr> <td>APPROVED</td> <td></td> </tr> </table>		APPROVED		DWG. NAME: GENERAL ASSEMBLY					
		APPROVED							
DWG. NO.: SD-F030-A101									
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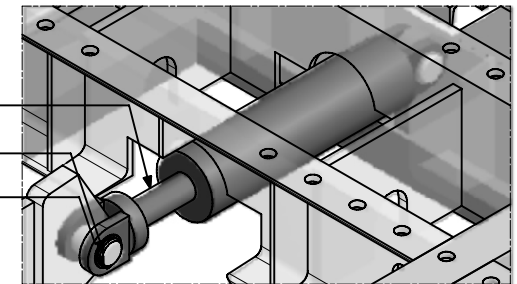
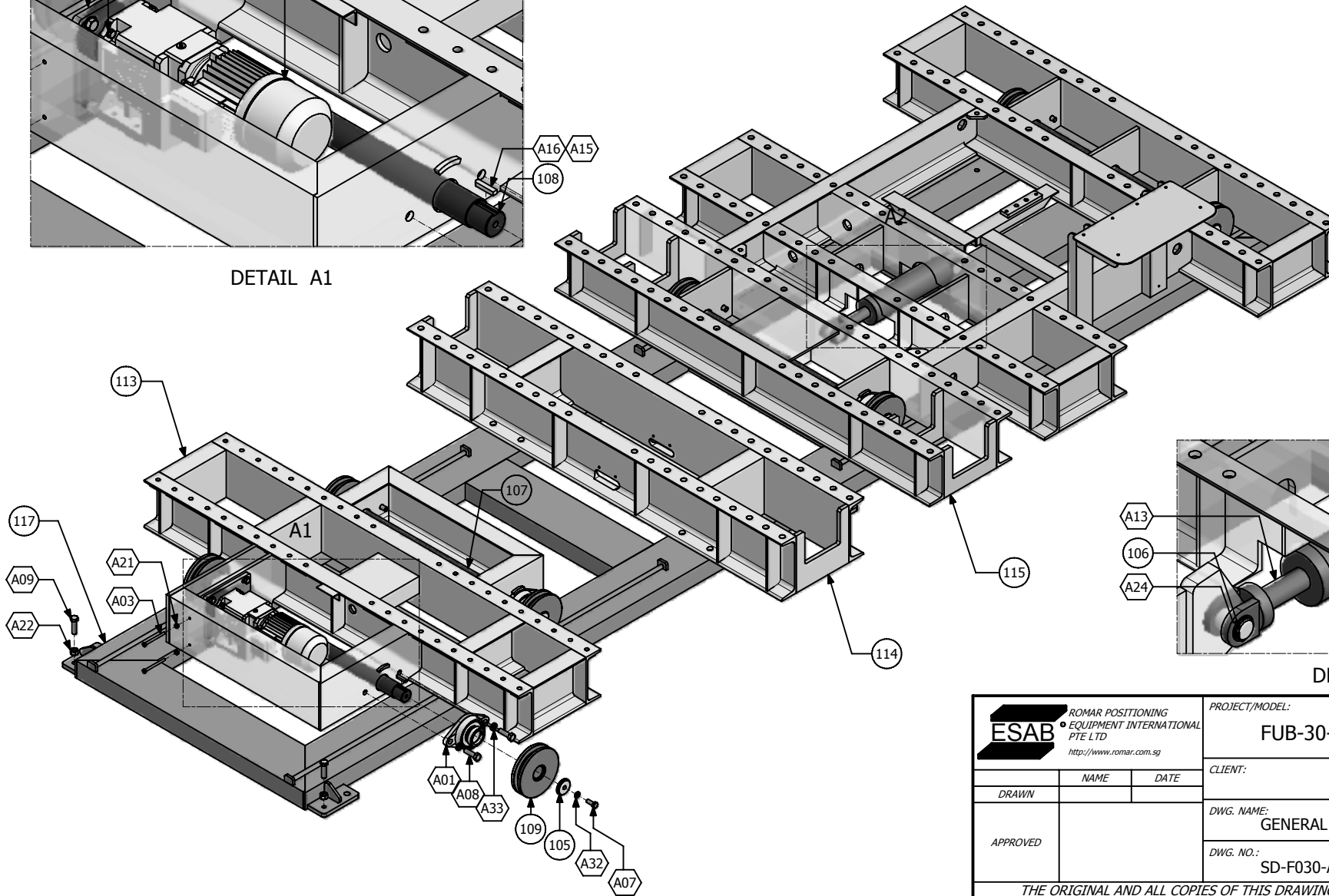
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SHEET NO.:
2 OF 5



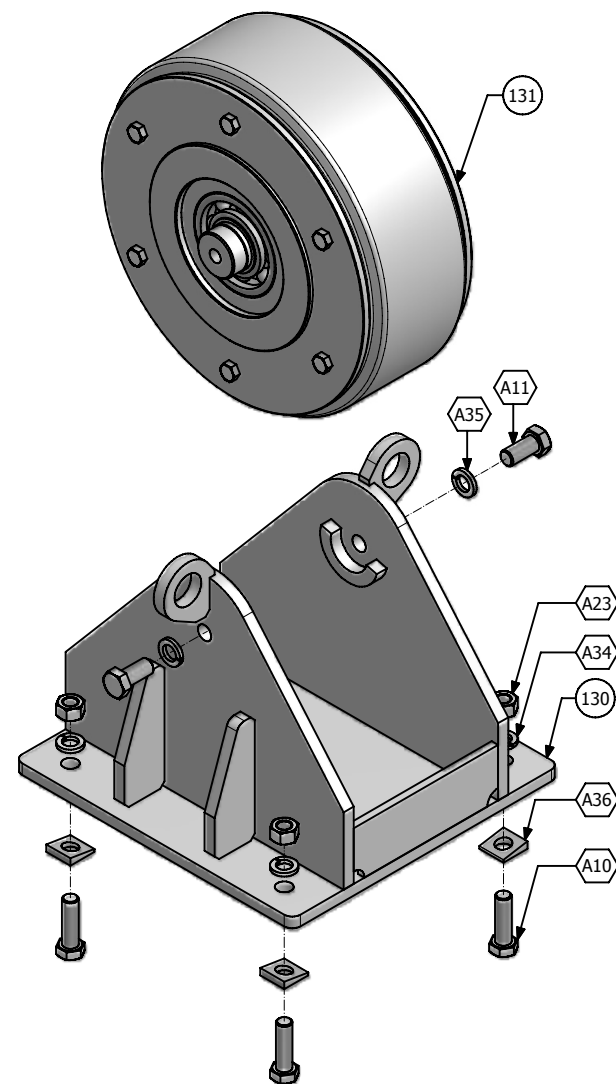
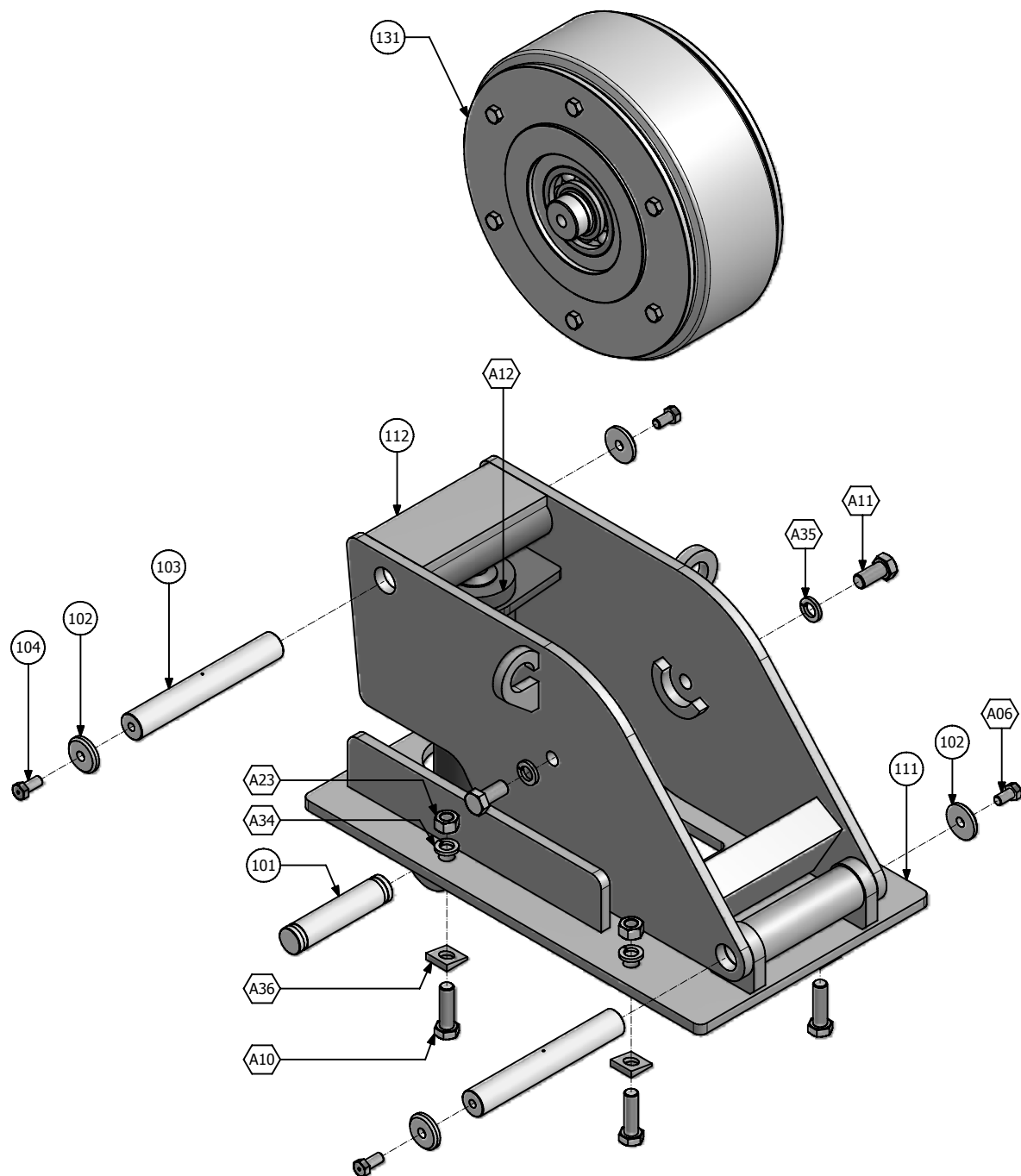
DETAIL A1





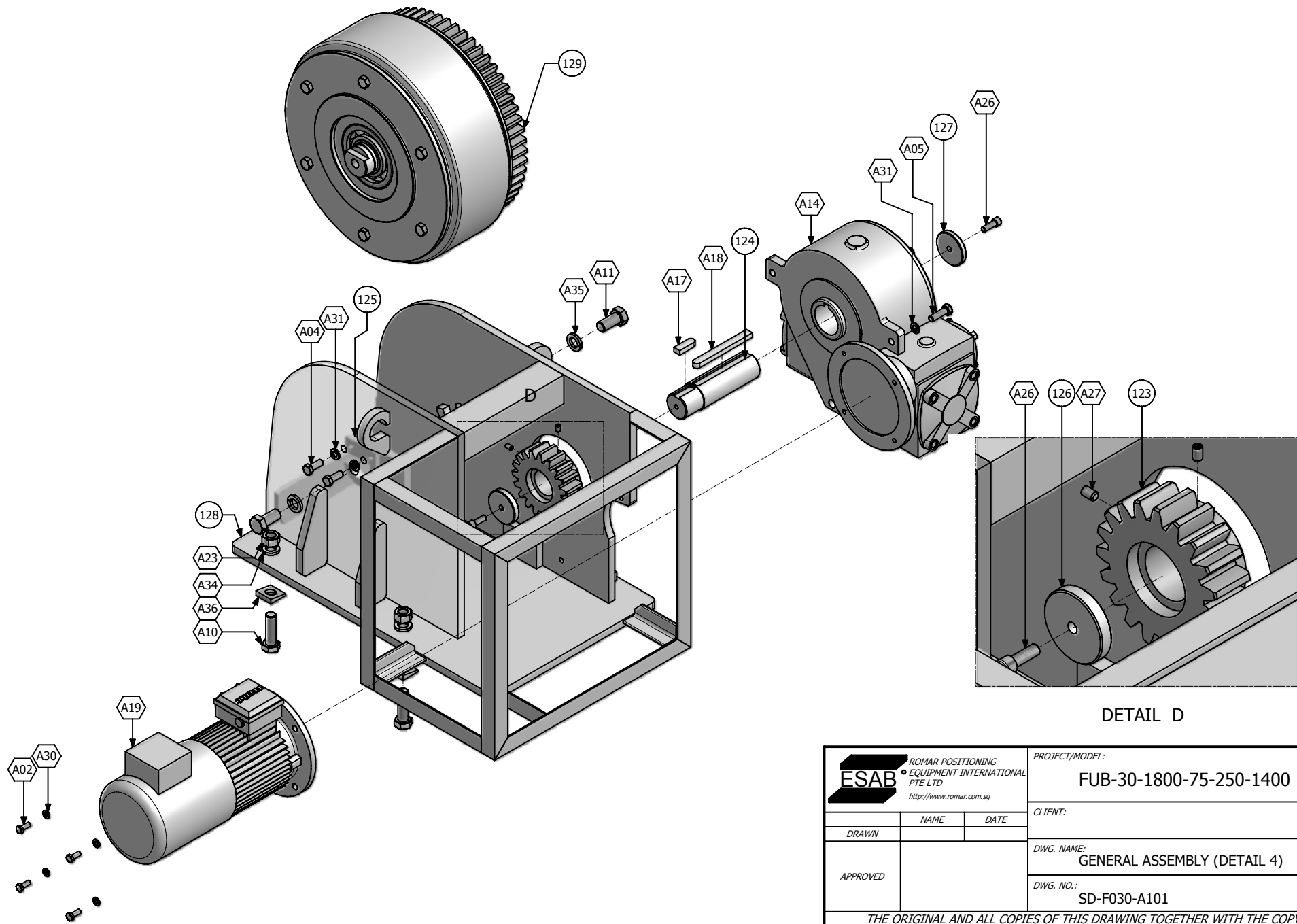
DETAIL A2

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			DWG. NAME: GENERAL ASSEMBLY (DETAIL 1)
			DWG. NO.: SD-F030-A101
			SCALE TO SCALE REVISION: 0 SHEET NO.: 3 OF 5



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DRAWN				
APPROVED			DWG. NAME:	SCALE TO SCALE REVISION: 0
			GENERAL ASSEMBLY (DETAIL 2 & 3)	
			DWG. NO.:	SHEET NO.:
			SD-F030-A101	4 OF 5
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DETAIL D

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			CLIENT:	
DRAWN	NAME	DATE		
APPROVED			DWG. NAME: GENERAL ASSEMBLY (DETAIL 4)	
			DWG. NO.: SD-F030-A101	
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